AUTOMOTIVE INDUSTRIES STATISTICAL ISSUE

MARCH 15, 1961

MARKETING GUIDE AND DESIGN IMPROVEMENT PLANNING SERVICE

COMPLETE
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43RD ANNUAL

A CHILTON PUBLICATION

TOOL-TIP GEOMETRY...

Elliptical or true Radius?

by Bruno A. Holmstrom
Chief Tool Engineer
The Heald Machine Company

To view this subject in its proper perspective, it is important to remember that no matter how large, complex or costly a boring or turning machine may be, it's the *tool tip* that does the work of removing metal. And on the proper geometry of this small but all-important part depends the success or failure of the entire machining operation.

One of the essentials of good tool design is the correct clearance angle between the work and tool at point of contact.

When finish cutting straight or tapered bores or O.D.'s, a varying clearance angle may be used, as all cutting is done with the outer tip of the tool where this angle is at the maximum. Here a conventional elliptical-point tool, where the clearance angle decreases on either side of the outer tip, is entirely satisfactory. Such tools can be accurately sharpened with an axis of tool reciprocation that is parallel to the face of the grinding wheel, as shown in Fig. 1.

However, when contour boring or turning spherical or irregular shapes, an entirely different situation occurs. Here, the point of contact on the tool tip varies from point to point on the workpiece, as shown in Fig. 2. If a conventional elliptical-point tool were used, the radius and clearance angle would vary from point to point on the work contour and optimum tool geometry would occur only at one of these locations.

For contour work, it is therefore preferable to use a true-radius tool tip—in which the clearance angle and radius is the same for any point on the cutting edge. To generate such a tip, the axis of tool reciprocation must be tilted with respect to the face of the grinding wheel, and this angle then becomes the constant clearance angle of the tool. This is shown in Fig. 3.

To permit grinding either *true-radius* or *elliptical-point* tools with maximum precision and economy, we developed the Heald Model 4 Tool Sharpening Machine. It is the *only* machine of its type which offers this choice of tool-tip geometry while providing fully automatic tool reciprocation for uniform and repetitive tool tip accuracy.

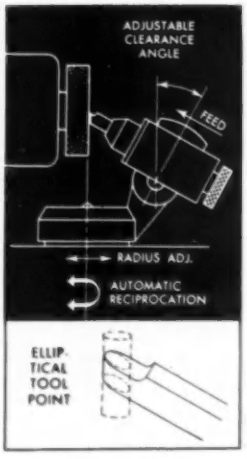

FIG. 1. Elliptical tool point with decreasing clearance angle for conventional straight-line work. Upper sketch shows arrangement of tool sharpening machine.

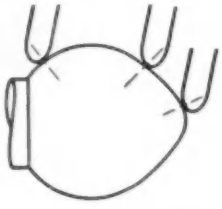

FIG. 2. Sketch showing how contact point of tool varies for different points on a contoured workpiece.

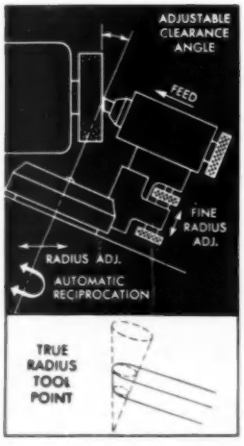

FIG. 3. True-radius tool point with constant clearance angle for contour boring or turning. Upper sketch shows tool sharpening arrangement.

FIG. 4. Heald Model 4 Tool Sharpening Machine arranged for precision grinding of true-radius tool point.

Ask your Heald representative for complete information on the Model 4 Tool Sharpening Machine, or send for Bulletin 2-4-3. **It PAYS to come to Heald.**

THE HEALD MACHINE COMPANY
Subsidiary of The Cincinnati Milling Machine Co.
WORCESTER 6, MASSACHUSETTS

Circle 101 on Inquiry Card for more data

KNOW YOUR ALLOY STEELS . . .

This is one of a series of advertisements dealing with basic facts about alloy steels. Though much of the information is elementary, we believe it will be of interest to many who may find it useful to review fundamentals from time to time.

When Should Alloy Steels Be Ordered to Hardenability?

What is hardenability and how does it differ in carbon and alloy steels?

Hardenability can be defined as the capacity of steel to develop a desired degree of hardness, usually measured in depth. It is produced by special heating and cooling. Carbon steel, except in small sections, will normally harden to a depth slightly below its surface, while alloy steel can, under certain conditions, harden uniformly through its entire cross-section.

Surface hardness obtainable after quenching is largely a function of the carbon content of the steel. Depth hardness, on the other hand, is the result of alloying elements and grain size, in addition to the carbon present in the steel.

In general, where hardenability is the prime consideration, it is not too important which alloy steel is used, just so long as there is sufficient carbon present to give the prescribed hardness, and there are enough alloying elements to quench out the section. It is not considered good practice to alloy a small section excessively, since excessive use of alloying elements adds little to the properties and can, in some instances, induce susceptibility to quenching cracks.

There are, of course, numerous cases where factors other than hardenability must be considered; such factors as low-temperature impact, heavy shock, creep-resistance, and the ability to resist temper brittleness. Through-hardening, therefore, is not always desirable. For example, shallow hardening is often necessary in shock applications, because a moderately soft core is essential.

This series of alloy steel advertisements is now available as a compact booklet, "Quick Facts about Alloy Steels." If you would like a free copy, please address your request to Publications Department, Bethlehem Steel Company, Bethlehem, Pa.

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See how B&W Lectrosonic tubing can meet your hydraulic line requirements. Just call your B&W District Sales Office or write for Bulletin T-435. The Babcock & Wilcox Company, Tubular Products Division, Beaver Falls, Pennsylvania.

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A CHILTON MAGAZINE • PUBLISHED SEMI-MONTHLY

MARCH 15, 1961

Passenger Cars • Trucks • Buses • Aircraft • Tractors • Engines • Bodies • Trailers • Road Machinery • Farm Machinery • Parts and Components • Accessories • Production and Processing Equipment • Design • Production • Engineering • Management

VOL. 124 No. 6

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BPA Business Publications Audit of Circulation

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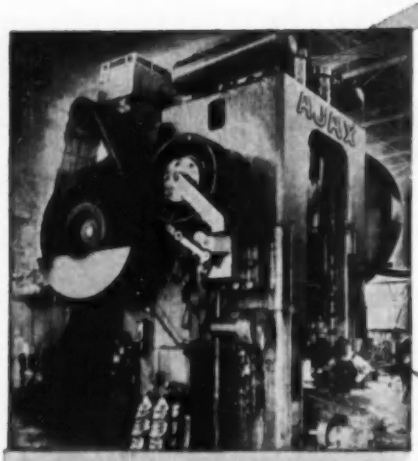

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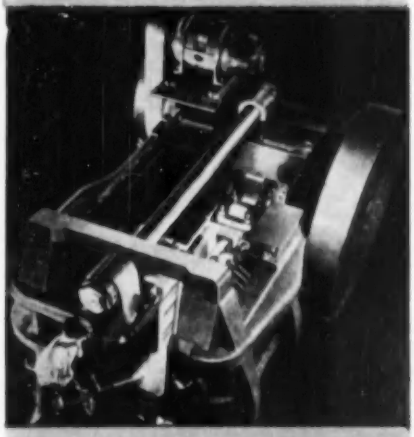

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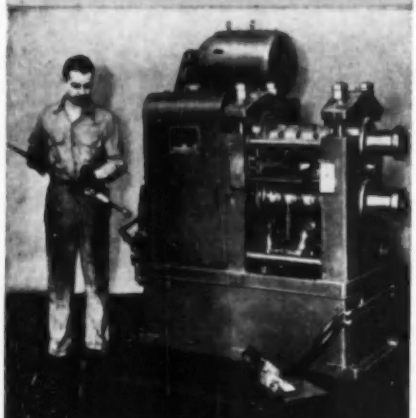

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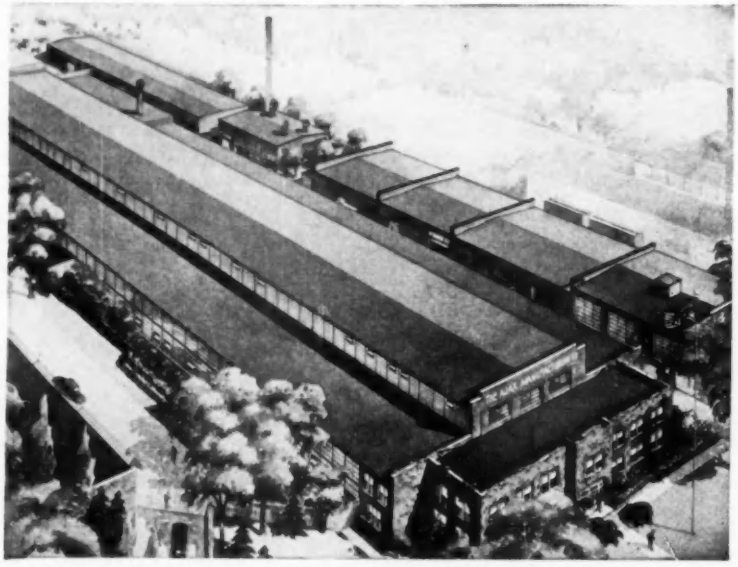

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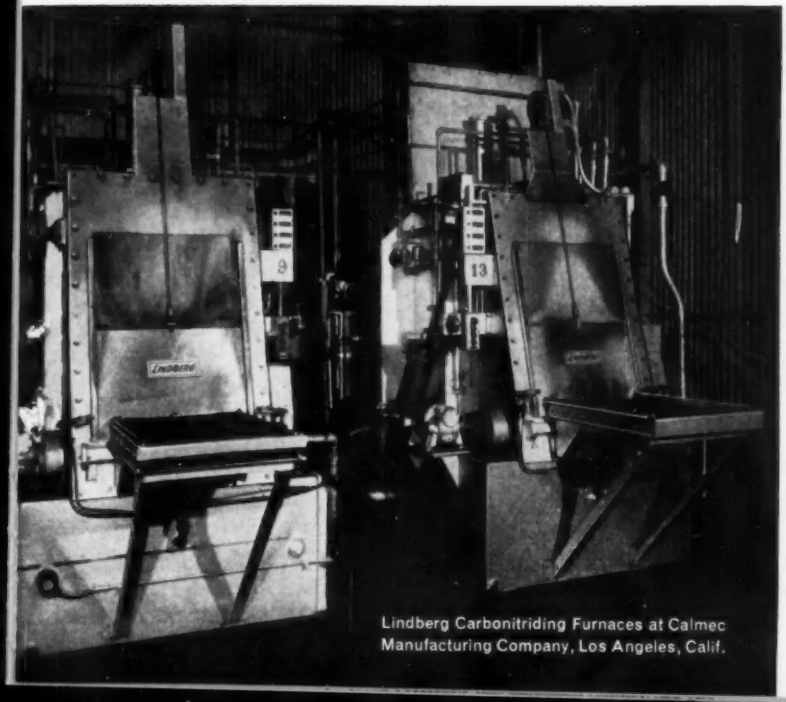
Circle 107 on Inquiry Card for more data ⟶

J. F. McINTYRE tells why CALMEC always looks to Lindberg for heat treating equipment

Left, S. E. Summers, Chief Design Engineer and at right, J. F. McIntyre, Executive Vice-President, Calmec Manufacturing Company, Los Angeles. In the Middle, J. E. Krickl, Western Sales Manager, Lindberg Engineering Company.

"When we have heat treating problems we like to get the Lindberg man right in the middle of them. We know Lindberg men are heat treating experts and the best source we have for advice on the most practical and efficient equipment to satisfy any heat treating requirement. As a result we've bought lots of Lindberg equipment in the past few years. We like it and the fact that we are continuing to buy it proves that the Lindberg man's advice has been sound."



Lindberg Carbonitriding Furnaces at Calmec Manufacturing Company, Los Angeles, Calif.

Mr. McIntyre has certainly backed up the above words with deeds. Over the past few years, Calmec, a leading manufacturer of precision tools, parts and missile system components, has installed twelve electrically heated furnaces, six gas-fired furnaces and four atmosphere generators—all Lindberg! And we hope there are more to come. If you have any product or process in the metal or ceramic field requiring the application of heat it would be a good idea to get the Lindberg man in the middle right away. You can depend on his experienced help and Lindberg's engineering and design know-how to provide exactly the right equipment for your need. It's easy! Just get in touch with your Lindberg Field Engineer (see your classified phone book) or write us direct. Lindberg Engineering Company, 2491 West Hubbard Street, Chicago 12, Illinois.

Los Angeles plant: 11937 S. Regentview Avenue, Downey, Calif[illegible]. In Canada: Birlefco-Lindberg Ltd., 15 Pelham Ave., Toronto 9, O[illegible]. Also, Lindberg plants in Argentina, Australia, England, France, Italy, Japan, South Africa, Spain, Switzerland and West Germany.

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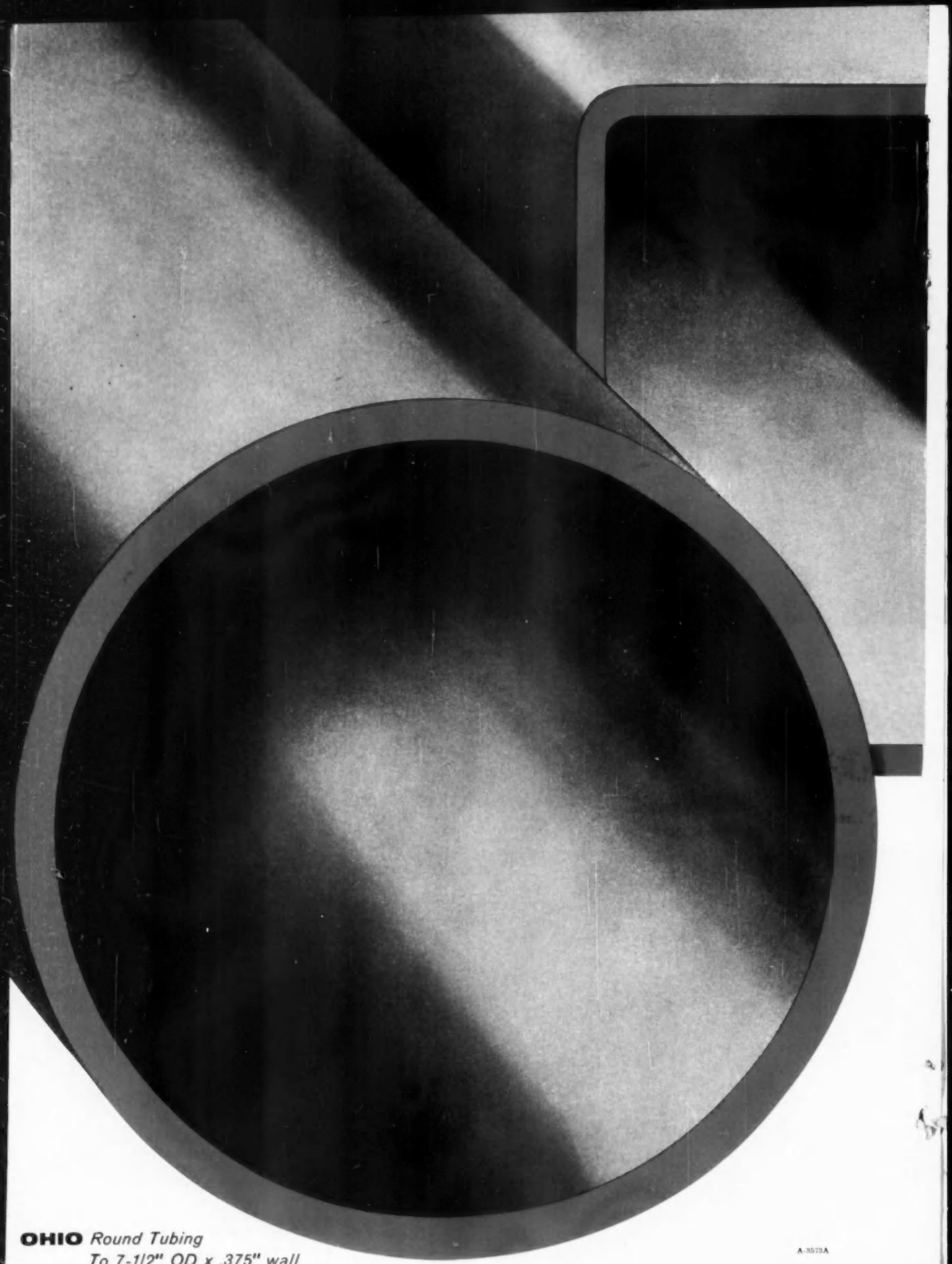
heat for industry



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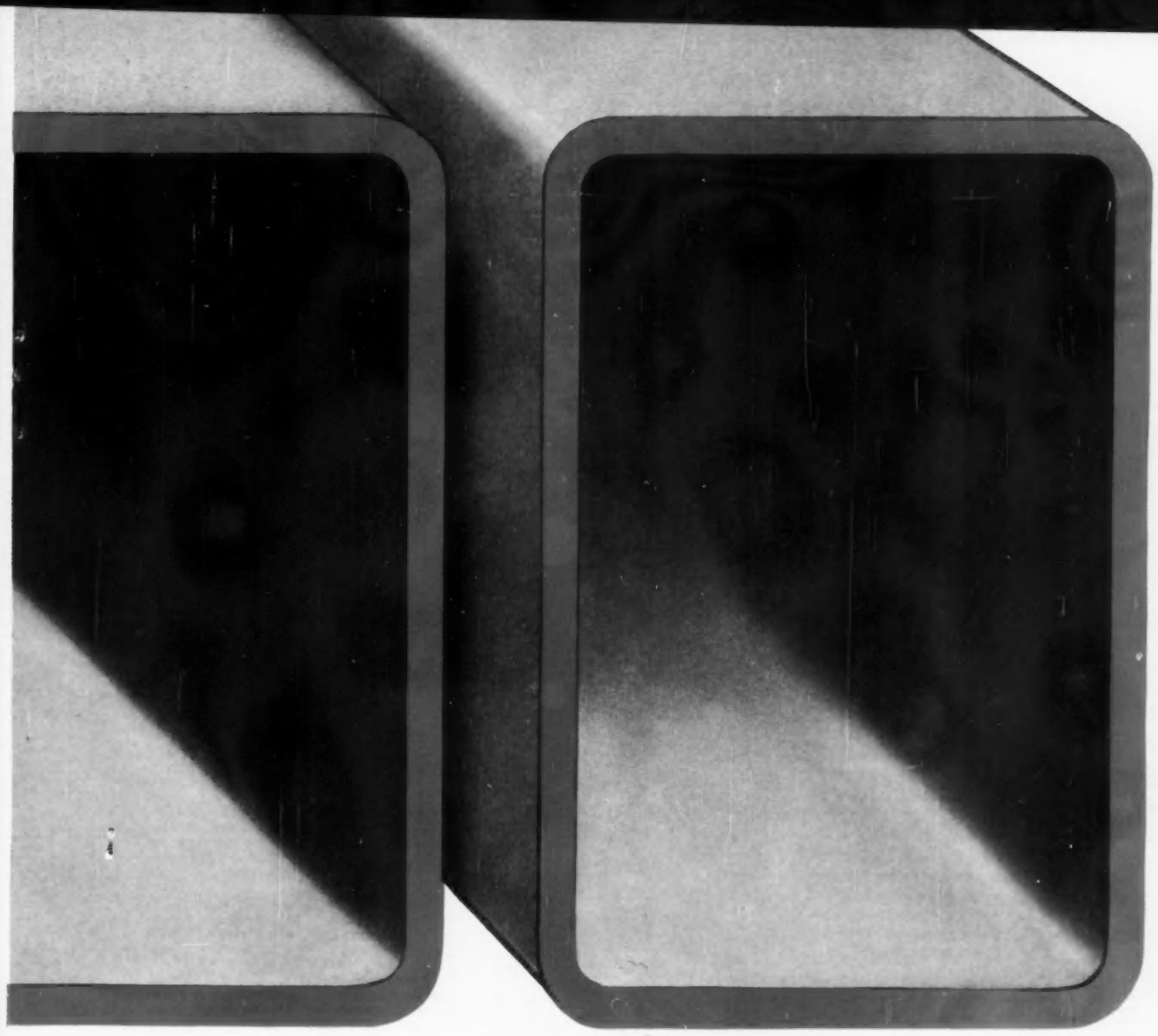

OHIO *Square Tubing*
To 6" x 6" x .259" wall

OHIO *Rectangular Tubing*
To 7-1/2" major diameter x .259" wall
Typical 4" x 6" x .259" wall section illustrated

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OF COMING SHOWS AND MEETINGS

The University of Wisconsin, Seminar on New Mathematical Methods for Industrial Engineers, Madison, Wis. ..... Mar. 20-22

American Society for Metals, Western Metal Exposition, Los Angeles ..... Mar. 20-24

23rd Annual American Power Conference, Sponsored by Six National Engineering Societies, Chicago ..... Mar. 21-23

Spring Technical Meeting, Pressed Metal Institute, New York. Mar. 22-24

American Machine Tool Distributors' Assn., 37th Spring Meeting, San Francisco ..... Mar. 23-25

Instrument Society of America, 3rd Symposium on Temperature, Columbus, Ohio ..... Mar. 27-31

Society of Automotive Engineers, National Aeronautic Meeting, New York ..... Apr. 4-7

Institute of Environmental Sciences, 1961 Annual Meeting and Equipment Exposition, Washington, D. C. ..... Apr. 5-7

Management Engineering Conference, American Society of Mechanical Engineers, Society for the Advancement of Management, New York City ..... Apr. 6-7

American Society of Mechanical Engineers, Oil & Gas Power Conference & Exhibit, New Orleans ..... Apr. 9-13

American Society of Mechanical Engineers, Maintenance & Plant Engineering Conference, Worcester, Mass. ..... Apr. 10-11

American Society of Lubrication Engineers, Annual Meeting, Philadelphia ..... Apr. 11-13

American Welding Society, 42nd Annual Convention and Welding Exposition, New York.. Apr. 17-21

43rd Anniversary National Truck, Trailer & Equipment Show, Los Angeles ..... Apr. 13-15

Instrument Society of America, Symposium on Instrumental Methods of Analysis, Houston Apr. 17-19

18th Annual Western Section Conference, Society of the Plastics Industry, Inc., Coronado, Calif. ..... Apr. 20-21

American Foundrymen's Society, 65th Annual Castings Congress, San Francisco ..... May 8-12

Design Engineering Show and Conference, Detroit ..... May 22-25

American Society of Tool & Manufacturing Engineers, 1961 Engineering Conference & Exhibit, New York ..... May 22-26

Society of Automotive Engineers, Summer Meeting, St. Louis.. June 5-9

American Society for Testing Materials, Annual Meeting, Atlantic City, N. J. ..... June 25-30

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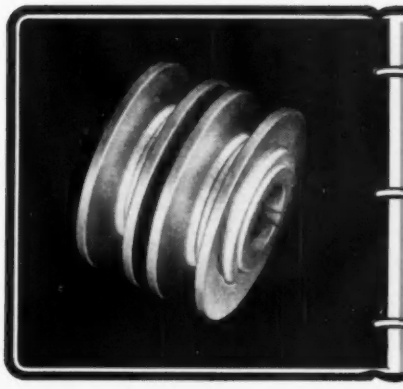
THE AMPLEXOLOGIST

. . . IS ADMITTED TO MANY SECRETS!

Many manufacturers have found it pays *not* to guard some secrets too closely. Especially from the Amplexologist. True, manufacturers are usually reluctant—the first time—to show the Amplexologist new model plans and prototypes *before* the design is final. But only the first time.

Why? Well, first of all the Amplexologist is no blabbermouth. He looks but doesn't talk. And what he sees can help cut costs. For example: *how to make this part, this part, this one and maybe this one, too, through advanced powder metallurgy—and save thousands of dollars in machining costs. Often improve the product at the same time.*

Well, secrets are fun but money is more so. That's why hundreds of manufacturers—in order to take full advantage of powder metallurgy before production begins—happily share their secrets with the Amplexologist. Their confidence has helped make us the world's largest and most experienced producer of powder metal parts. Another reason why leading manufacturers say: **When it comes to powder metallurgy—Amplex has the answer.**



NEW DESIGN . . .

The part shown is a double V (drive) pulley. Originally, it was designed to be machined from steel. The manufacturer, however, consulted the Amplexologist before incorporating it into a new model. Result: the part was designed for powder metal and is now produced as a finished precision part which requires no machining. Estimated saving 82%.

AMPLEXOLOGIST

AMPLEX

DIVISION CHRYSLER CORP.
DETROIT 31, MICHIGAN

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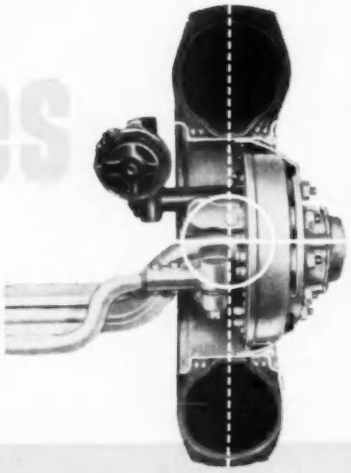
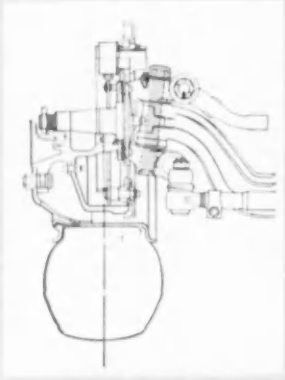
'Way out front in steering ease...

"CENTER POINT"

steer front axles

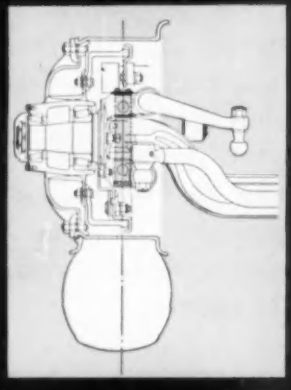


Rockwell-Standard® Center-Point steer for heavy-duty vehicles gives you 3 advantages • Easy steering with less weight and cost than power assist • Safer, better vehicle control with less driver fatigue • Reduced maintenance costs and less downtime because tires and steering parts last longer.



THE ORDINARY WAY

Inclined kingpin design necessitates lifting the front axle load when wheels are turned. Because linkage is a greater distance from center-line of tire, and is not perpendicular to ground—it is subject to many forces not present in the Center Point design.



THE CENTER POINT WAY

Steers the truck without lifting the load. Vertical kingpin is perpendicular to the ground – eliminating the need to lift the load. Knuckle pin bushings and linkage parts last longer because of the load reduction . . . steering is easier.

EXTRA! THESE TIME-PROVED ROCKWELL-STANDARD FEATURES

Delrin Knuckle Pin Bushings—cannot rust or corrode.

Forged Steering and Tie Rod Arms—extra strength and rigidity.

Balanced "I" Beam Center—equalized "I" design gives greater resistance to both lateral and vertical stress.

Air or Hydraulic Brakes—whatever is best for your operation.

True Sphere Ball Studs—induction hardened for longer wear.

Simplified Maintenance—simplified design cuts maintenance cost, speeds lubrication.

Forged Knuckles and Spindles—enclosed, to keep lubrication in, dirt out.

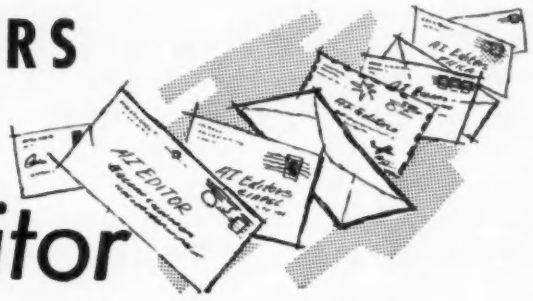
Another Product of... **ROCKWELL-STANDARD CORPORATION**

ROCKWELL R STANDARD

Transmission and Axle Division, Detroit 32, Michigan

Circle 112 on Inquiry Card for more data

LETTERS to the Editor



Readers' opinions or requests for additional information on material appearing in the editorial pages of AUTOMOTIVE INDUSTRIES are invited for this column. No unsigned letters will be considered, but names will be withheld on request. Address *Letters to the Editor*, AUTOMOTIVE INDUSTRIES, 56th & Chestnut Sts., Philadelphia 39, Pa.

P. I. P.

The technical data sheets and other information (AI's Production Improvement Planning Service) which you recently sent us were reviewed by both our product engineer and our plant superintendent. Both of these staff people reacted favorably to this type of information, and felt that it would be useful and would help to keep us up to date on available new products.

We will have a better idea of its value to our plant after having an opportunity to use it in our operations.

I would like to compliment you and your staff in your efforts to provide your readers with useful information. I am sure that many others will also appreciate this service.

Frank Lipari
Plant Manager
J. I. Case Co.
Stockton, Calif.

The "Technical Data Sheets" which you plan to issue as a special mailing will be most valuable to our development activity. We are, therefore, very much in favor of your continuing this service.

J. L. Bennett
Product Development Manager
Black & Decker Mfg. Co.
Towson, Maryland

Your Production Improvement Planning Program, which I think is something very much worthwhile, should contribute to the increasing interest in modernization.

Are you planning to issue additional data sheets from individual machine tool builders? It would seem to me that the real key to this program is having a pretty comprehensive file on data sheets as a reminder of areas to investigate. Actually, a constant pattern of data sheets over the next year or so, would keep up the interest.

James C. Kelly
Executive Vice President
American Machine Tool Distributors Assn.
Washington, D. C.

GAS TURBINES

I would like to receive a reprint of Parts I, II, and III of the article, "Automotive Gas Turbines" by Dr. Pio Franco Martinuzzi. Part I has appeared in the February 15 issue of AUTOMOTIVE INDUSTRIES on pages 58 through 61. I would appreciate it if you would make arrangements to send me reprints of each part as it appears.

S. A. Soper
Cleveland Graphite Bronze
Division of Clevite Corp.
Cleveland, Ohio

● *Roger—Ed.*

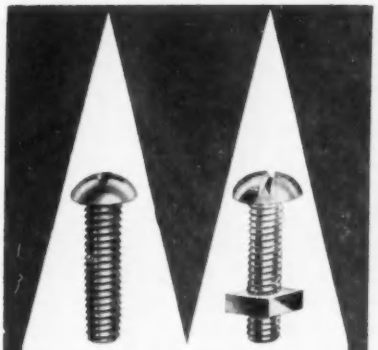
WHERE OR WHEN

In the late 1960 issues of AUTOMOTIVE INDUSTRIES I have read an article on a cartridge developed by Chrysler for jet starters on aircraft.

We cannot put our fingers on that particular issue, and I wish that you would send us a reprint, and also any other information that you may have on the subject.

F. J. Pechal
Hose Development Engineer
Raybestos-Manhattan, Inc.
Passaic, N. J.

● *Solid propellant type starter referred to was developed not by Chrysler, but by Olin Mathieson Chemical Corp. and Goodyear Tire & Rubber—Ed.*



FOR VARIETY

STANDARDIZE 100% ON SOUTHERN FASTENERS

A stock of 1,500,000,000 USA-made fasteners means that Southern's variety of items, sizes, materials, head styles and finishes can be your source of constant supply. Standardize 100% on Southern fasteners, and forget about carrying a large, costly, space-consuming inventory. Let Southern's variety and famous service help solve your fastener problems.

It will pay you to try Southern on your next order. Write today, using your letterhead, for our Stock List showing current variety of fasteners ready for delivery in large or small quantities. Address Southern Screw Company, P. O. Box 1360, Statesville, North Carolina.

Manufacturing and Main Stock in Statesville, North Carolina

WAREHOUSES:
New York • Chicago • Dallas • Los Angeles

Machine Screws & Nuts • Tapping Screws • Wood Screws • Stove Bolts • Drive Screws • Carriage Bolts • Continuous Threaded Studs

Southern SCREW COMPANY
STATESVILLE • NORTH CAROLINA

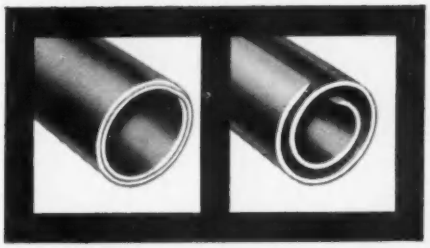
Circle 113 on Inquiry Card for more data

Bundy can mass-fabricate practically anything

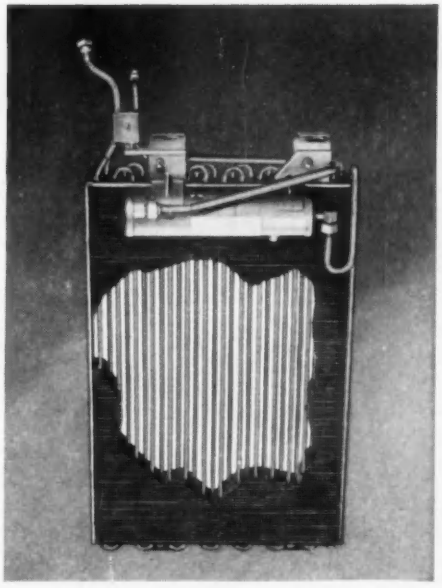
Complex or simple, your tubing components need precision bending to fit right on your production line. Bundy turns out parts like the air-conditioner condenser coil shown below by the thousands. And Bundy can fabricate tight bends in the connecting lines between the condenser, evaporator, temperature regulation valve and discharge tube from Bundyweld®, too. This is the tubing that has long been accepted as the safety standard of the automotive and refrigeration industries. Meets ASTM 254; Govt. Spec. MIL-T-3520, Type III. When you need tubing, phone, write or wire: Bundy Tubing Company, Detroit 14, Michigan.

BUNDY TUBING COMPANY • DETROIT 14, MICH. • WINCHESTER, KY. • HOMETOWN, PA.

World's largest producer of small-diameter tubing. Affiliated plants in Australia, Brazil, England, France, Germany, Italy, Japan.



Bundyweld, double-walled from a single copper-plated steel strip, is metallurgically bonded through 360° of wall contact. It is lightweight and easily fabricated . . . has remarkably high bursting and fatigue strengths. Sizes available up to 5/8" O.D.



The condenser coil and connecting tubes of this air conditioner supplied to Ford by the McCord Corp. are made from Bundyweld steel tubing. Double-walled Bundyweld provides leakproof dependability and important cost savings.

BUNDYWELD® TUBING

Circle 114 on Inquiry Card for more data

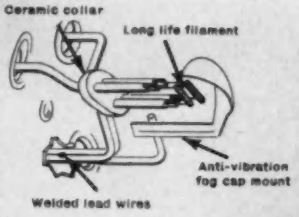
Complete Tung-Sol Heavy Duty Line creates

NEW STANDARDS FOR LIGHTING DEPENDABILITY

Now . . . Tung-Sol makes available a complete line of lamps and flashers designed specifically for extremely rough service conditions. Designers of trucks, off-highway equipment, police, fire, emergency vehicles and passenger car fleets should consider the added value of these lighting components that meet and fulfill so competently heavy duty lighting requirements.

heavy duty performance comes from Tung-Sol filament design

The most durable headlamp filaments ever developed provide the extra long life characteristic of Tung-Sol Heavy Duty Headlamps.



631 1155 1898
Sturdy twin filaments, made of special thoriated wire and connected in series, deliver up to *three* times more service.

1895
Double-anchored filament of thoriated wire provides *triple* average service life.

1156 1157
High impact-resistant filament helps to produce service life up to *three times* ordinary lamps.

Up to 6 Lamp signaling capacity
535 536 537 550
Tung-Sol Heavy Duty Flashers provide exceptionally long life in meeting signaling requirements from two to six lamps.

TUNG-SOL®

HEAVY DUTY LAMPS · FLASHERS

Automotive Products Division,
Tung-Sol Electric Inc., Newark 4, N.J.

TWX: NK193

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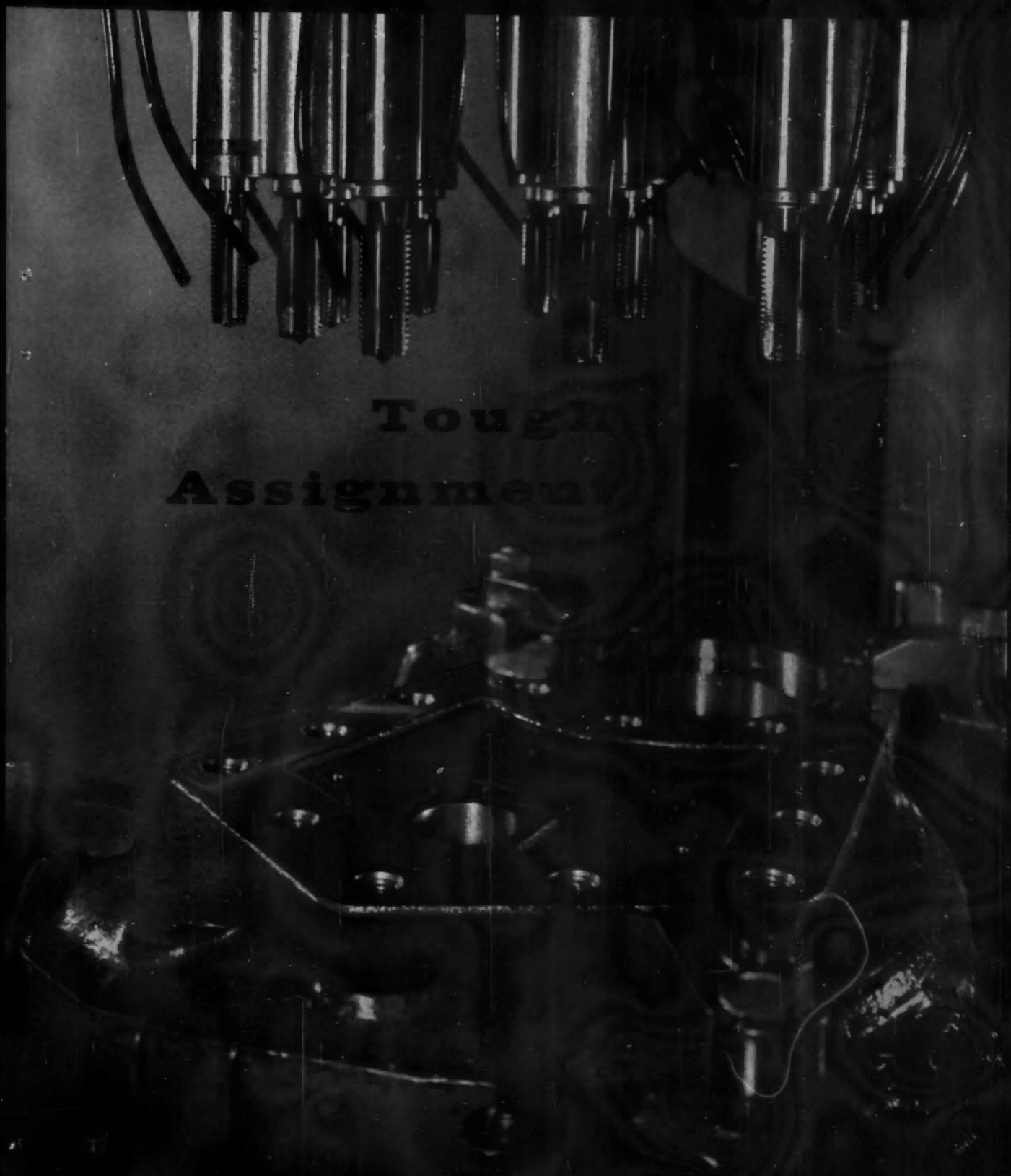
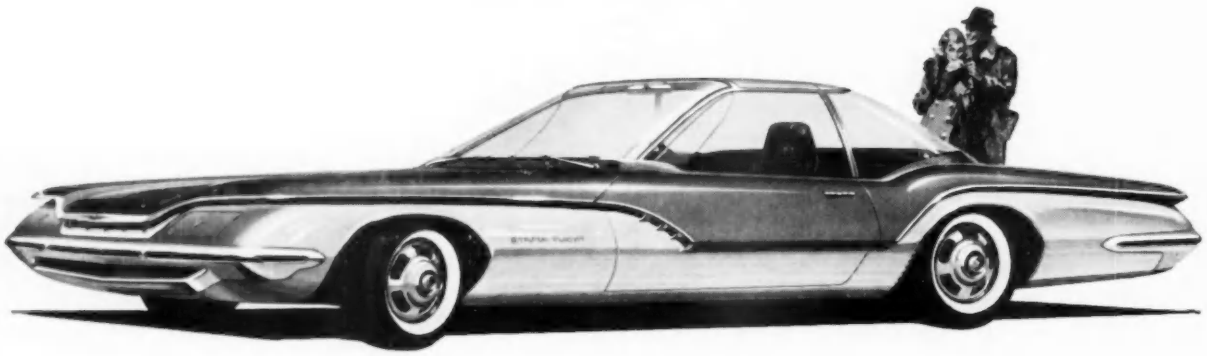
Circle 116 on Inquiry Card for more data ⟶



Any tap man will tell you that tapping in armor plate is just as tough a job as one could ask for. Here 17 1"-8 GREENFIELD stock taps are simultaneously tapping Class 5 threads day after day in 2" armor plate Final Drive Cases for Military Tanks. Just another example of how the toughest jobs become routine with taps that can "take it". Buy taps with confidence, buy GREENFIELD taps.

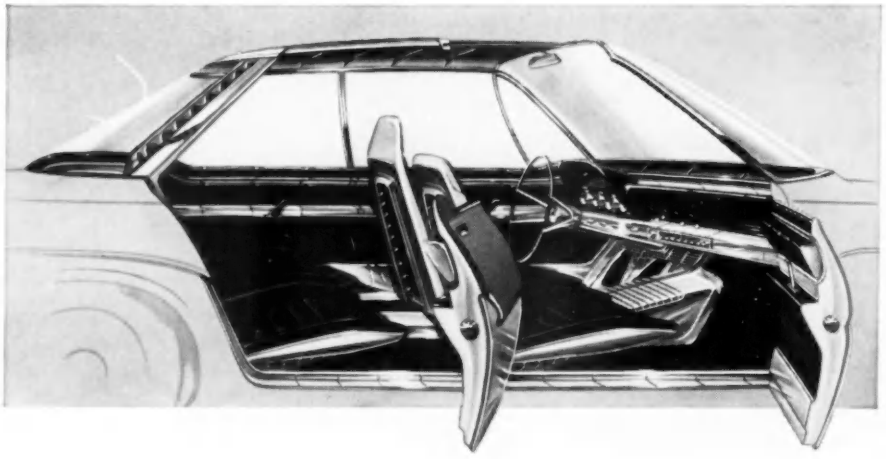
GREENFIELD TAP & DIE GREENFIELD, MASSACHUSETTS



stainless steel

No other metal has the strength, beauty and versatile qualities that serve you so well today and promise so much for tomorrow.

There is nothing like stainless steel for AUTOMOBILES



McLouth Steel Corporation,
Detroit 17, Michigan

Manufacturers of high quality
Stainless and Carbon Steels

Look for the **STEELMARK** on the products you buy.

McLOUTH STAINLESS STEEL

Circle 117 on Inquiry Card for more data

Circle 118 on Inquiry Card for more data

THE COLD LOGIC OF AIR BRAKE BUYING. A cold, logical bird, the owl. He plans his moves shrewdly—and is almost always successful in getting what he's after. Cold logic applies to air brake buying, too. Shrewd analysis of air brake devices and systems reveals a real difference between makes . . . in quality, performance and reliability. That's why it's important to consider the reputation and the record of all brands before you buy. When you do, you'll find Bendix-Westinghouse Air Brakes are the logical choice. Reason: Since 1923, we've manufactured to a quality and performance standard—not just to a price. This policy is your assurance you will continue to get most-value-per-dollar by specifying Bendix-Westinghouse Air Brakes—the product and name you can trust.

SPECIFY COMPLETE AIR BRAKE SYSTEMS BY **Bendix-Westinghouse**

BENDIX-WESTINGHOUSE AIR BRAKES ®

Renew **AIR BRAKE** performance, dependability with BENDIX-WESTINGHOUSE REPAIR EXCHANGE SERVICE!

The warranty seal tells the story. Through the Bendix-Westinghouse Repair Exchange Service program—the finest in the industry—you can replace your worn or damaged air brake components with factory-rebuilt units carrying the same warranty as brand-new devices. They incorporate the latest engineering improvements, and guarantee you new-unit operating efficiency at a low cost per mile.

The procedure is simple. Call or visit your nearest Bendix-Westinghouse distributor. He will provide you—from stock—with a factory reconditioned unit at a low flat rate based on necessary repairs to your old equipment. In the unit you receive, all worn parts or those subject to deterioration will have been replaced with new parts. All components will have been assembled and tested in the same manner as new devices, with maximum performance guaranteed.

So, to renew your air brake system performance, see your Bendix-Westinghouse authorized distributor today. Let him supply the repair exchange service that's the Safety Standard of the World!

Bendix-Westinghouse
AUTOMOTIVE AIR BRAKE COMPANY

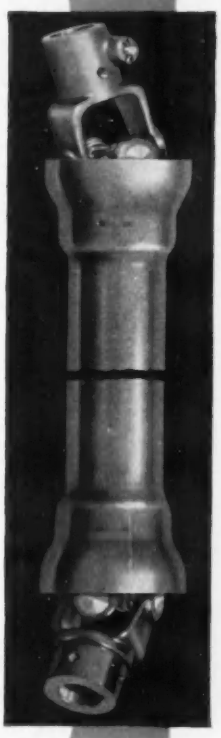
BENDIX-WESTINGHOUSE AIR BRAKES

BENDIX-WESTINGHOUSE SINCE 1923 PACEMAKER IN TRANSPORT SAFETY

General offices and factory—Elyria, Ohio. Branches—Berkley, Cal., and Oklahoma City, Okla.

RELIABLE

Whether for close-coupled main drive lines or for exposed steering and adjustment drives, designers have learned to rely on MECHANICS. Where joints must run all day at high angles—where there are severe shock loads—where wide angles and long slip are common — and where dirt and/or moisture constantly are present—MECHANICS Roller Bearing UNIVERSAL JOINTS are used. Lubrication is so tightly sealed in that dirt and moisture cannot enter. Our engineers will be glad to show you how MECHANICS Roller Bearing UNIVERSAL JOINTS will help insure the reliable operation of your product.



MECHANICS UNIVERSAL JOINT DIVISION
Borg-Warner • 2024 Harrison Ave., Rockford, Ill.

MECHANICS
Roller Bearing BW
UNIVERSAL JOINTS
For Tractors • Trucks and Farm Machines

Export Sales: Borg-Warner International
36 South Wabash Chicago 3, Illinois

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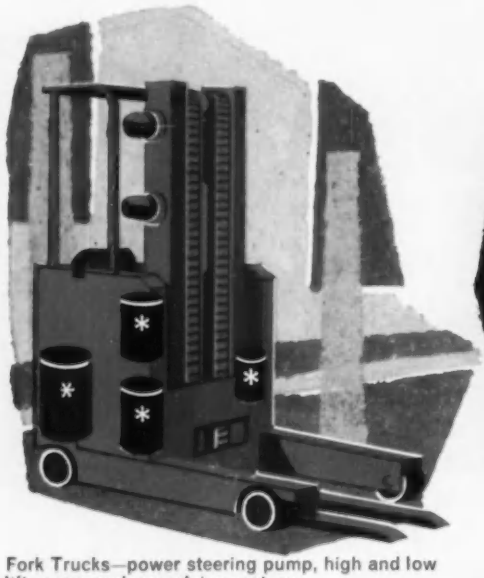
DELCO-REMY CUSTOMIZES

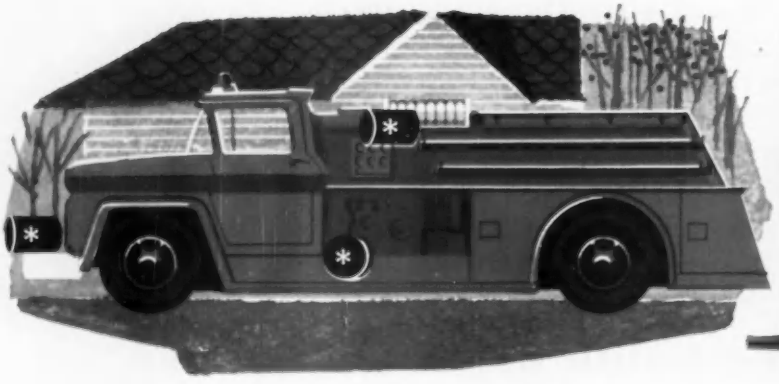
here are a few ways these



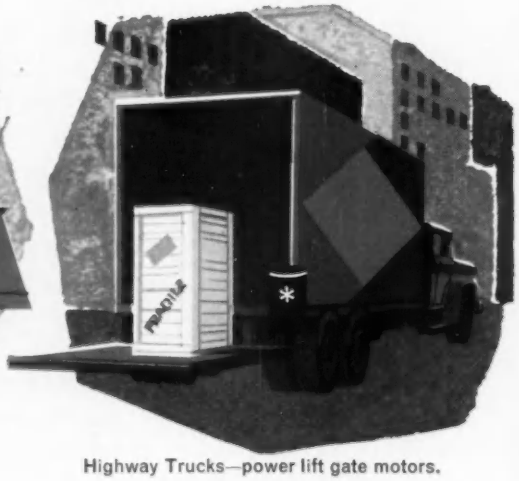
Fork Trucks—power steering pump, high and low lift pump, and propulsion motors.

Buses—heating, defrosting and air conditioning blower motors.

* electrical energy for the



Fire Trucks—siren, hose reel and pump primer motors.



Highway Trucks—power lift gate motors.

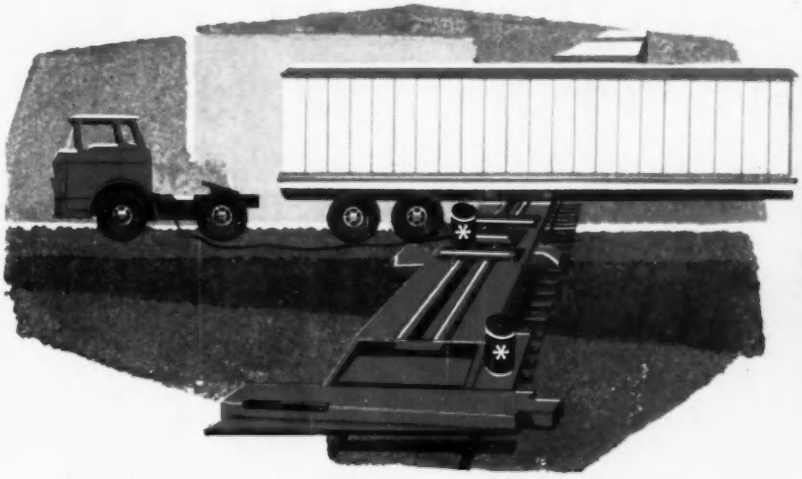
If you have a special power-motion problem, a customized Delco-Remy d.c. motor may be your answer. Like power steering pump and propulsion motors for fork-lift trucks . . . blower motors for buses . . . hoist motors for tow vehicles—and many others. Whatever it is, Delco-Remy can fit your design needs exactly! Here's why:

Delco-Remy draws on a complete stock of mass-built components to keep unit cost down. Then, using the skill and know-how of over 40 years, engineers combine components for specific torque, speed and power output requirements. Special provisions can be made, too, for extra high efficiency demands. And every Delco-Remy d.c. motor is built to pass rigid reliability standards.

D.C. MOTORS FOR SPECIAL JOBS

motors can help industry

N.Y.C. R.R. Flexi-Van System—hydraulic pump motors.



Emergency Vehicles—siren motors.

special needs of power-motion

Off-Highway Equipment—remote steering motors.

Tow Vehicles—crane, pump and hoist motors.

Delco-Remy has built intermittent and continuous duty d.c. motors for all kinds of off-the-highway use, for high-lift trucks and low-lift pallet trucks, for buses, and police and fire equipment. Is your engineering department writing specs for a special purpose motor on your product? Or would you like to improve your present application? Be sure to consider a d.c. electric motor for your needs. Write Delco-Remy about it. We'll be happy to give you complete data and assistance.

From the highway to the stars

Delco-Remy electrical systems

DELCO-REMY • DIVISION OF GENERAL MOTORS • ANDERSON, INDIANA

Circle 120 on Inquiry Card for more data

SPICER INTRODUCES NEW TRANSMISSION!

Extra-Heavy-Duty 8000 Series Direct on 5th

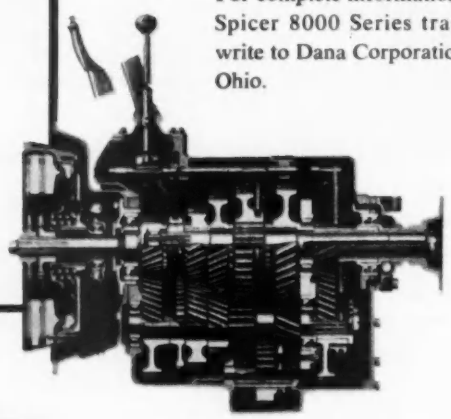
Here is the extra-heavy-duty transmission that truck fleet operators have demanded! The new Spicer 8000 Series 5-speed transmission is the largest capacity direct-on-fifth transmission on the market. It is designed primarily to complement big diesel engines.

With the new 8000 Series Spicer transmission, top vehicle speed is obtained in direct drive. Ratios of the new transmission are spaced so that they are functionally split or compounded with ratios of 2- and 3-speed axles and 3- and 4-speed auxiliary transmissions. Spicer 14" 2-plate and 15½" 2-plate clutches are matched to work at top efficiency with this new 8000 Series unit.

Ratios in the standard 8052 (iron case) and 8054 (aluminum case) and the optional 8052-A and 8054-A are:

RANGE	STANDARD MODELS 8052 and 8054	OPTIONAL MODELS 8052-A and 8054-A
1st	7.30 to 1	5.68 to 1
2nd	4.54 to 1	3.13 to 1
3rd	2.75 to 1	1.71 to 1
4th	1.65 to 1	1.29 to 1
5th	1.00 to 1 (direct)	1.00 to 1 (direct)
Reverse	7.00 to 1	5.47 to 1

NOTE: The 8031 and 8035 Series Spicer auxiliary transmissions have been augmented by a new underdrive ratio of 1.19 to 1 to better complement the ratios of the new Series 8000 direct-on-fifth transmissions.



For complete information on the new Spicer 8000 Series transmissions, write to Dana Corporation, Toledo 1, Ohio.

DANA Spicer

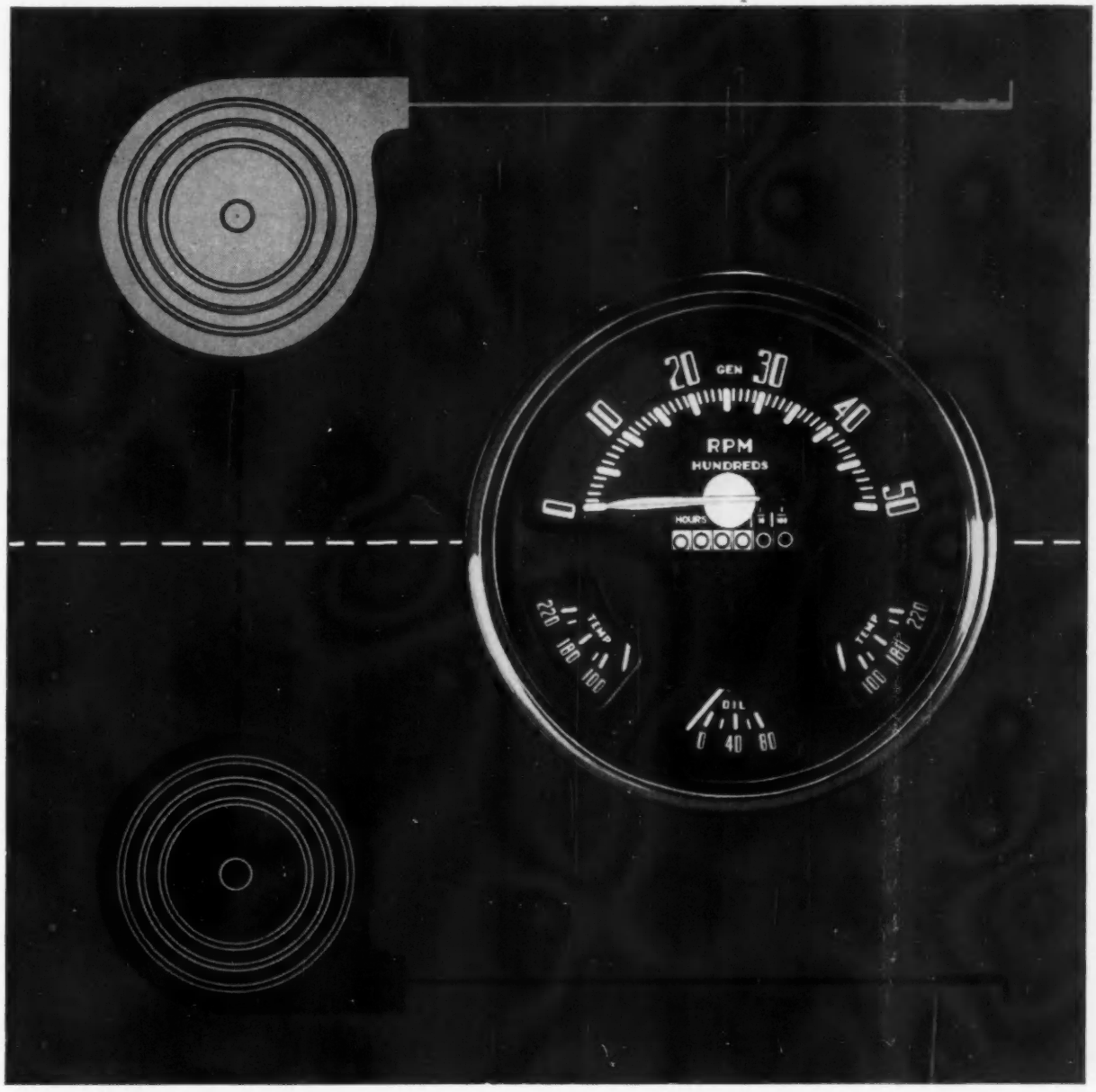
DANA CORPORATION

Toledo 1, Ohio

SERVING TRANSPORTATION—Transmissions • Auxiliaries Universal Joints • Clutches Propeller Shafts • Power Take-Offs Torque Converters • Axles • Powr-Lok Differentials • Gear Boxes • Forgings • Stampings • Frames • Railway Drives

Many of these products are manufactured in Canada by Hayes Steel Products Limited, Merritton, Ontario

YOU CAN'T BEAT AC FOR PRODUCT KNOWLEDGE



Measure these facts before you start your Instrument planning

Thirty-five years of instrumentation experience has led to many important AC achievements: AC has designed and developed over 2000 instrument clusters . . . AC instrument applications range from small inboard boats to heavy-duty off-the-road construction equipment . . . AC has 15 specially trained engineers working exclusively on instrument design and development . . . AC instrument engineers spend over 3000 hours yearly working with customers in their own plants. AC instruments are performance-proved in continuous tests. AC has the latest equipment for developing customer instrument samples. For expert instrumentation advice and help, call the nearest AC office below. You'll get fast ACtion at AC!

AC SPARK PLUG ❀ THE ELECTRONICS DIVISION OF GENERAL MOTORS

FLINT—1300 No. Dort Hwy., CEdar 4-5611 | CHICAGO—7074 N. Western Ave., ROgers Park 4-9700 | DETROIT—321 Fisher Bldg., TRinity 5-9197 | CLEVELAND—20575 Center Ridge Rd., EDison 1-8622 | LOS ANGELES—7660 Telegraph Road, RAymond 3-5171

AC

RELIABLE PRODUCTS HELP YOU SELL

WHAT'S NEWS IN ENJAY RESINS FOR SURFACE COATINGS

Alkyd Melamine After 500 Hours Salt Spray

Epoxy Ester After 700 Hours Salt Spray

Buton 200 After 700 Hours Salt Spray

BUTON® 200 Resin offers better corrosion resistance—saves up to 1/3 the cost

In a recent series of salt spray tests, Buton 200 Resin outperformed epoxy ester and alkyd melamine formulations. All samples were automotive primer formulations with equivalent pigmentation. Test results? The Buton based primer had the lowest creep of all three. Impact testing also revealed that Buton-based primers had good adhesion, flexibility and impact resistance. By selecting Buton 200 Resin, you can save up to ⅓ on metal primers. Samples and a booklet on Buton Resins for metal primers may be obtained by writing to 15 West 51st Street, New York 19, N. Y.

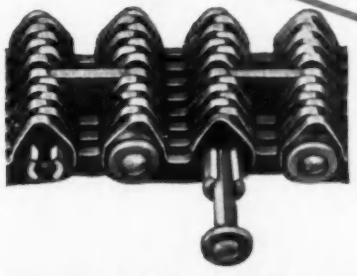
EXCITING NEW PRODUCTS THROUGH PETRO-CHEMISTRY

ENJAY CHEMICAL COMPANY

A DIVISION OF HUMBLE OIL & REFINING COMPANY

ENJAY RESINS

why more designs for '61 were proved with LINK-BELT timing chains



Segmental bushings provide automatic joint snugness

Segmental bushings are made with slight bow.

After initial assembly in chain, bushings are straight.

Bow in bushings acts to keep a snug joint on nonload side, maintaining chain pitch automatically.

1st with bushed joint!

Link-Belt held the original patents for the bushed joint which has contributed so much to the quietness, smoothness and long-lasting efficiency of timing chains. This joint may now be duplicated . . . but never surpassed.

Again this year, leading automotive manufacturers have included Link-Belt Timing Chain in their plans for long life, smoother operation and peak timing drive performance.

Link-Belt offers segmental bushings for automatic joint snugness, with no "slap" on the nonload side. Built-in check in joints permits forward articulation for sprocket contact without back-bend.

Let our engineers show you how this space-saving 11/16-in. chain can fit into your plans. Specifications are available in Book 2065. Write for your copy.

15,570

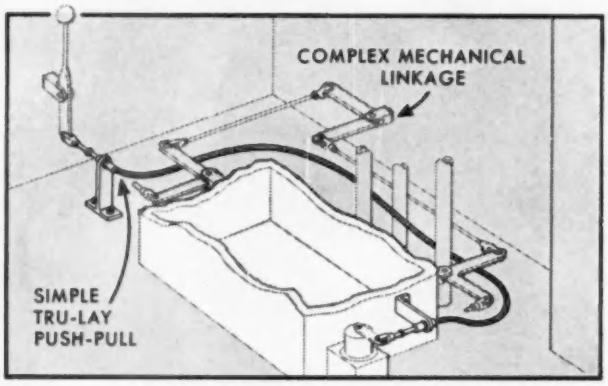
LINK-BELT

TIMING CHAIN AND SPROCKETS

LINK-BELT COMPANY: 220 South Belmont Ave., Indianapolis 6, Ind.

TRU-LAY *PUSH*-PULL CONTROLS PROVIDE ACCURATE, DEPENDABLE REMOTE CONTROL FOR HUNDREDS OF PRODUCTS

• If your products involve remote control—electrical, hydraulic, pneumatic or direct—TRU-LAY PUSH-PULL FLEXIBLE CONTROLS can help solve your design problems. They provide positive remote control over long or short distances—up to 150 feet from the control point. Because they operate while flexing, they can snake around obstructions. They will not buckle. They are ruggedly constructed, easily installed and operated, sealed against dirt and moisture, and will handle jobs with as much as 1,000 lbs. input. PUSH-PULL CONTROLS are simple, have but one moving part, are noiseless, and give a lifetime of accuracy. Mechanical linkages, on the other hand, are complex. Unlike PUSH-PULL CONTROLS, they are made of many parts, wear at many points, and produce increased backlash, lost accuracy, and vibration rattles.



Sizes and Operating Heads to Fit Your Design

Control Dimension	Minimum Recommended Radius in Inches	Maximum Input Load in Pounds (Dependent on Travel)
3/32"	2	30
1/8"	3	65-125
3/16"	5	115-175
1/4"	6	300-600
5/16"	8	700-1,000

Heavy Duty • For use where rugged duty prevails, but where operation must be smooth and accurate. Meets all requirements for dependability and life.

Light Duty • Gives smooth, accurate and dependable performance at low cost. Available with your choice of several types of knobs.

Selective Friction • Amount of friction can be changed to meet individual requirements of the operator or application. Friction constant at any setting.

Position Lock • A slight turn of the T-type handle locks the control in any position. Available in two sizes for light and heavy-duty applications.

Micro Control • Push or pull the knob for instantaneous response, then rotate knob for vernier adjustment. Built for smooth, efficient operation on any job.

PUSH-PULL DATA FILE shows how to simplify, improve design

PUSH-PULL CONTROLS are solid as a rod and flexible as a wire rope. They're factory-lubricated for life, unaffected by temperature extremes, and can be adapted to practically any application. For complete details on how you can use them, write for the PUSH-PULL DATA FILE. It contains 7 engineering Bulletins which describe in detail the operation of PUSH-PULL CONTROLS, their applications, features and advantages. Our engineers will be glad to help you make TRU-LAY PUSH-PULL CONTROLS a part of your product.

PUSH-PULL CONTROLS

Automotive and Aircraft Division • American Chain & Cable Company, Inc.

601-H Stephenson Bldg., Detroit 2

6800-H East Acco Street, Los Angeles 22 • 929-H Connecticut Ave., Bridgeport 2, Conn.

ACCO

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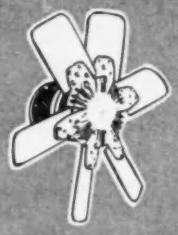
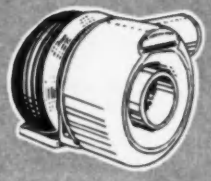
SCHWITZER

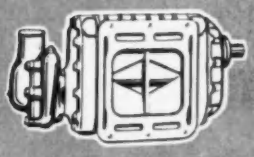
Fans



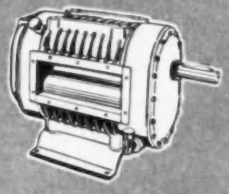
Fan Drives



Turbochargers

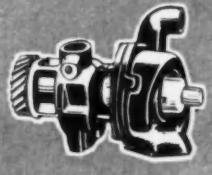


Superchargers



Air Pumps

Dampers



Pumps

Shaft Seals

PRECISION PRODUCTS

with

a

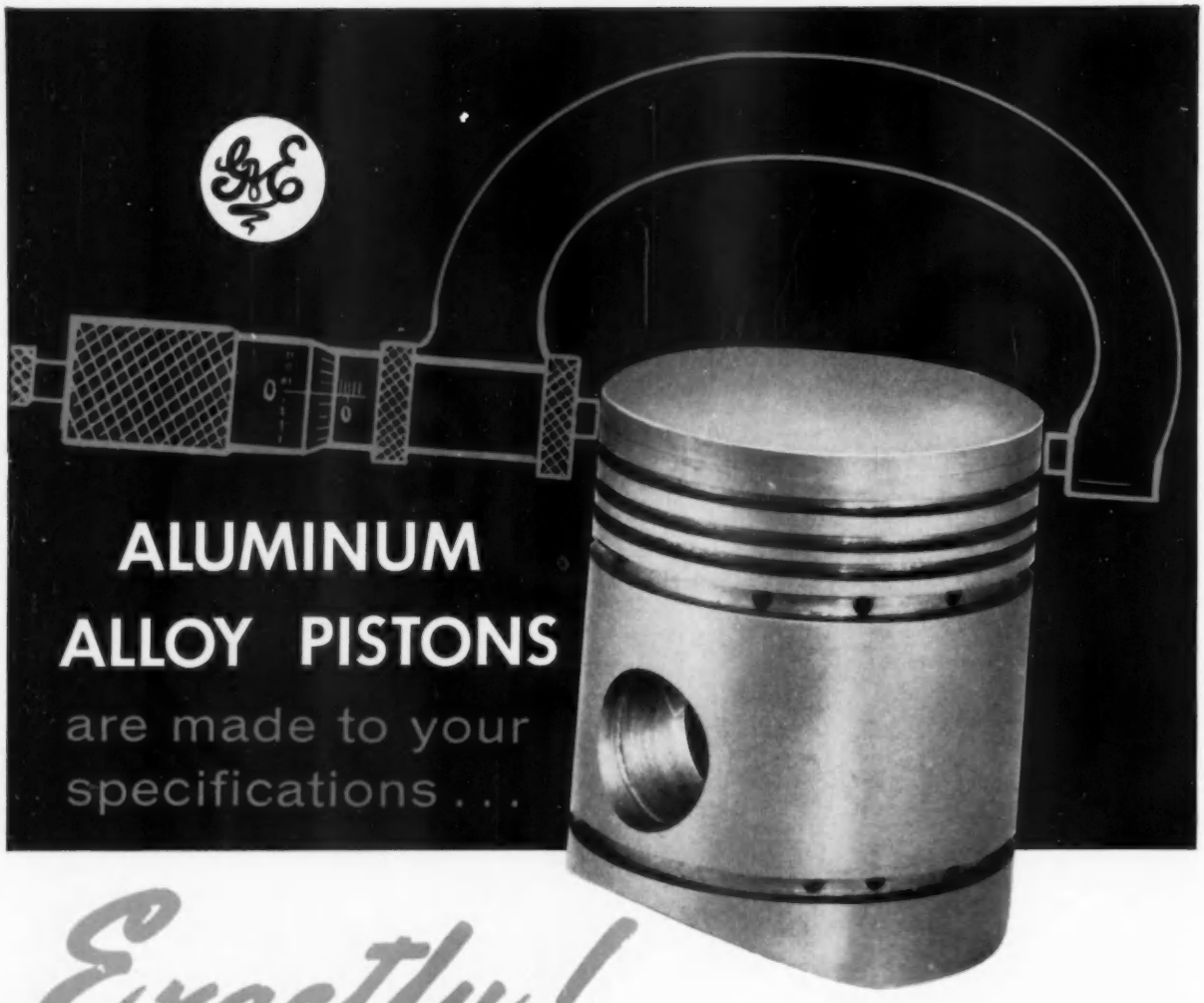
new

approach

INTERNATIONALLY ACCLAIMED

SCHWITZER CORPORATION

INDIANAPOLIS 7, INDIANA U.S.A.



Exactly!

If you want high performance characteristics that do not vary from engine to engine, specify Gillett & Eaton aluminum alloy pistons. Quality control checks assure each piston to your specifications.

More than ninety years of G&E experience goes into every piston on your order. Complete laboratory, casting and piston machining facilities assure efficient, economical production . . . keep your price competitive. Write us—we will quote on your specifications and send you complete information.

CASTING FACILITIES FOR ANY PRODUCT

● **Sand Casting** ● **Semi-permanent Mold Casting**
● **Permanent Mold Casting**

Any castable shape and metal—aluminum alloy, high-tensile iron, bi-metals and others. Tell us what you want.

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841 DOUGHTY STREET, LAKE CITY, MINNESOTA
Casting and Piston Specialists • Established 1868
Sold in Canada by Gould National Batteries of Canada, Ltd., Fort Erie, Ontario

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BETTER PROFITS THROUGH BETTER TOOLING WITH CARBOLOY® CARBIDE PLUSES

ANNOUNCING THE NEW CARBOLOY® TRACER IN THE ADJUST-O-BREAKER TOOLHOLDER FAMILY

Now you can choose your tracer toolholders with all the cost-cutting advantages of the Carboloy® Adjust-O-Breaker line. The newest addition to the Adjust-O-Breaker line, this tracer toolholder is available in 2 styles and 7 sizes to help you handle more jobs with less tooling.

The exclusive Adjust-O-Breaker design lets you adjust the chipbreaker from any angle . . . offers any desired adjustment within its range . . . features "floating" indexable chipbreaker with absolute repeatability. In addition to the tracers, you can choose from negative rake Adjust-O-Breakers (10 styles, 54 sizes), and positive rake (5 styles, 50 sizes), to meet most of your tooling needs more efficiently and economically.

Check today with your Authorized Carboloy Distributor – or write: *Metallurgical Products Department of General Electric Company, 11151 E. 8 Mile Road, Detroit 32, Michigan.*

CARBOLOY®
CEMENTED CARBIDES

METALLURGICAL PRODUCTS DEPARTMENT

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CARBOLOY® CEMENTED CARBIDES • MAN-MADE DIAMONDS • MAGNETIC MATERIALS • THERMISTORS • THYRITE® • VACUUM-MELTED ALLOYS

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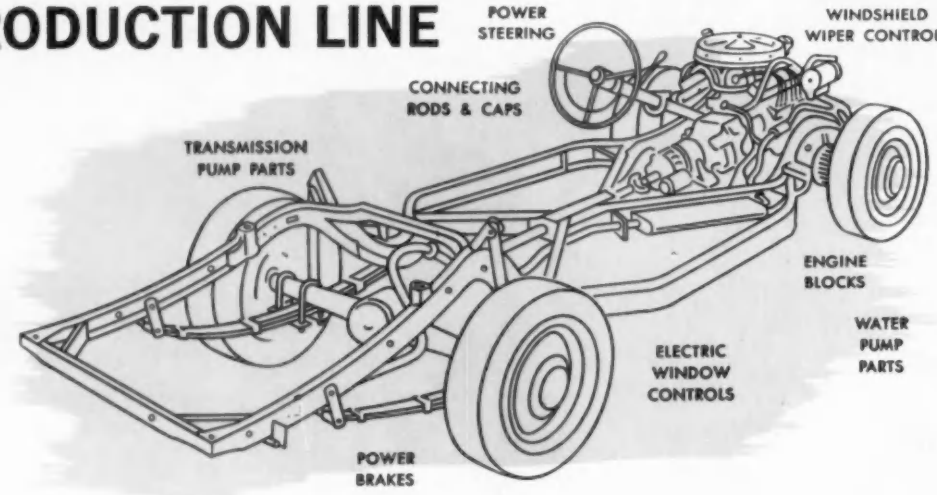
HOW PRODUCTION LAPPING WITH THE LAPMASTER FITS INTO THE AUTOMOTIVE PRODUCTION LINE



There are many money-saving reasons why machine lapping with the Lapmaster has become an important, and in many cases a necessary, operation in the production of automobile parts, from large engine blocks to small water pump impellers. For instance:

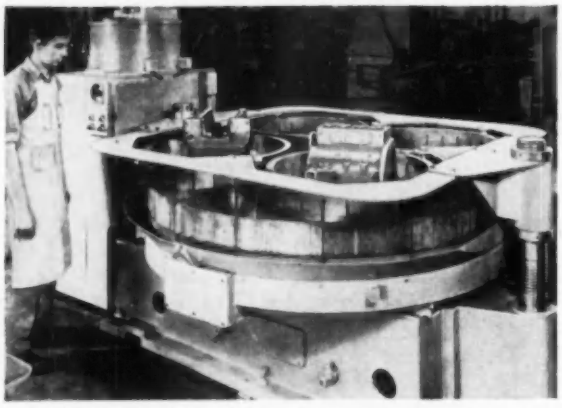
There is no other production way of finishing parts to a flatness of .0000116" or less with a micro-inch finish of 2 to 3 RMS with absolute uniformity, piece-after-piece.

Normal warpage in aluminum alloy castings easily removed to provide flat surfaces for the accuracy required in subsequent operations. Warpage resulting from clamping or chucking during previous milling and grind operations is also economically removed with the Lapmaster.

Substantial production savings are also possible because lapping eliminates need for deburring, finish grinding or milling operations and permits use of increased milling speeds.

In small lots or thousands per day, production is not interrupted or slowed down for replacing or reconditioning lap plates because Lapmaster conditioning rings automatically keep lap plate flat.

A GOOD EXAMPLE



Production lapping of two surfaces on 4-cylinder engine blocks on a Model 72 Lapmaster, provides a gasketless oil seal at the oil pan juncture and a gasketless compression seal between head and block.

New Catalog Tells More

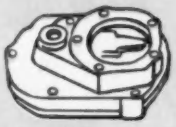
If flatness, parallelity or a precision finish is a problem in your production process, find out how Lapmaster is saving others money. This 24 page catalog includes technical data, specifications, tooling set-ups and actual production case histories. Send for a copy.

Lapmaster®
...THE MACHINE THAT PUT PRECISION LAPPING ON A PRODUCTION BASIS

A product of
Crane Packing Company
6435 OAKTON ST. • MORTON GROVE, ILL. *(Chicago Suburb)*
In Canada: Crane Packing Company, Ltd., Hamilton, Ont.

The quickest most practical way to put strong threads in soft materials the TAP-LOK® INSERT

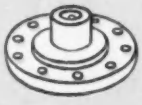
FOR SOFTER METALS AND PLASTICS . . .
Slotted TAP-LOK insert has full V-form external threads to provide maximum locking torques; permit wide choice of mating hole sizes. Recommended for soft aluminum, zinc die castings, sand castings, and plastics. Meets requirements of MIL-MS 35914.



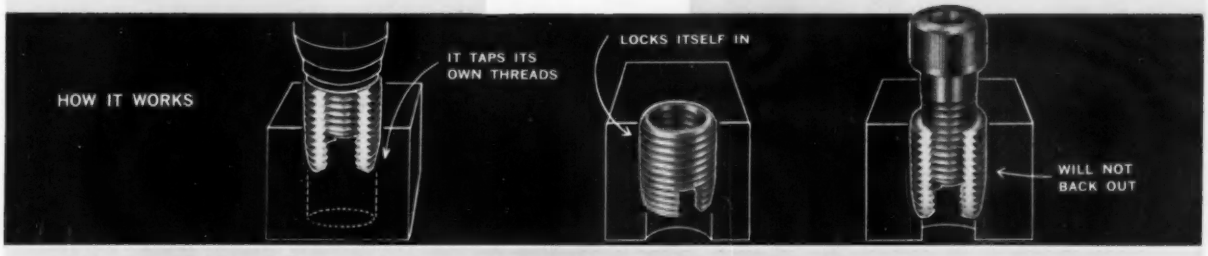
FOR HIGHER STRENGTH MATERIALS
H-Series heavy-walled TAP-LOK insert has truncated root external thread and three-hole cutting edges for hard-to-tap higher strength materials and to meet MIL and other specs calling for Class 3B thread fit for gaging after installation.

FOR SPARK PLUG SOCKETS . . .
P-Series TAP-LOK insert was designed to eliminate thread wear and renew damaged threads in spark plug sockets in aluminum cylinder heads. Available from stock for standard plug sizes to meet most needs.

FOR WOOD . . .
W-Series TAP-LOK insert has coarse pitch external thread offering maximum strength in combination with ability to be driven into thin sections without splitting them. For furniture, cabinets, and other wooden parts where strong, permanent threads are needed, or which must be frequently assembled and disassembled.



FOR LOCKING THE MATING SCREW . . .
N-Series Tap-Lok Insert has Nylok pellet embedded in threads to make internal threads self-locking. Ideally suited for adjustment screws and applications involving severe shock and vibration. Meets requirements of MIL-N-25027 (ASG)



The TAP-LOK® threaded insert taps its own thread and locks itself into the parent material in a single, quick operation. Designed as a permanent fastener in materials which are machinable but not strong enough to sustain applied loads in threads tapped directly into them, it is also widely used in harder metals and alloys where repeated assembly makes thread wear a problem.

Since TAP-LOK cuts its own threads, no additional assembly time is required, *making its installed cost the lowest of any threaded insert!*

Once installed, it is permanently locked in place, and will not back out under repeated heavy shocks or prolonged vibration. TAP-LOK inserts are available in the types shown at the right, in a variety of metals that include casehardened carbon steel, brass and 18-8 stainless steel (type 303). For complete information and prices, write Groov-Pin Corporation, 1131 Hendricks Causeway, Ridgefield, N. J.

TAP-LOK

Another fastener development from—

GROOV-PIN CORPORATION

SEE OUR CATALOG IN SWEET'S

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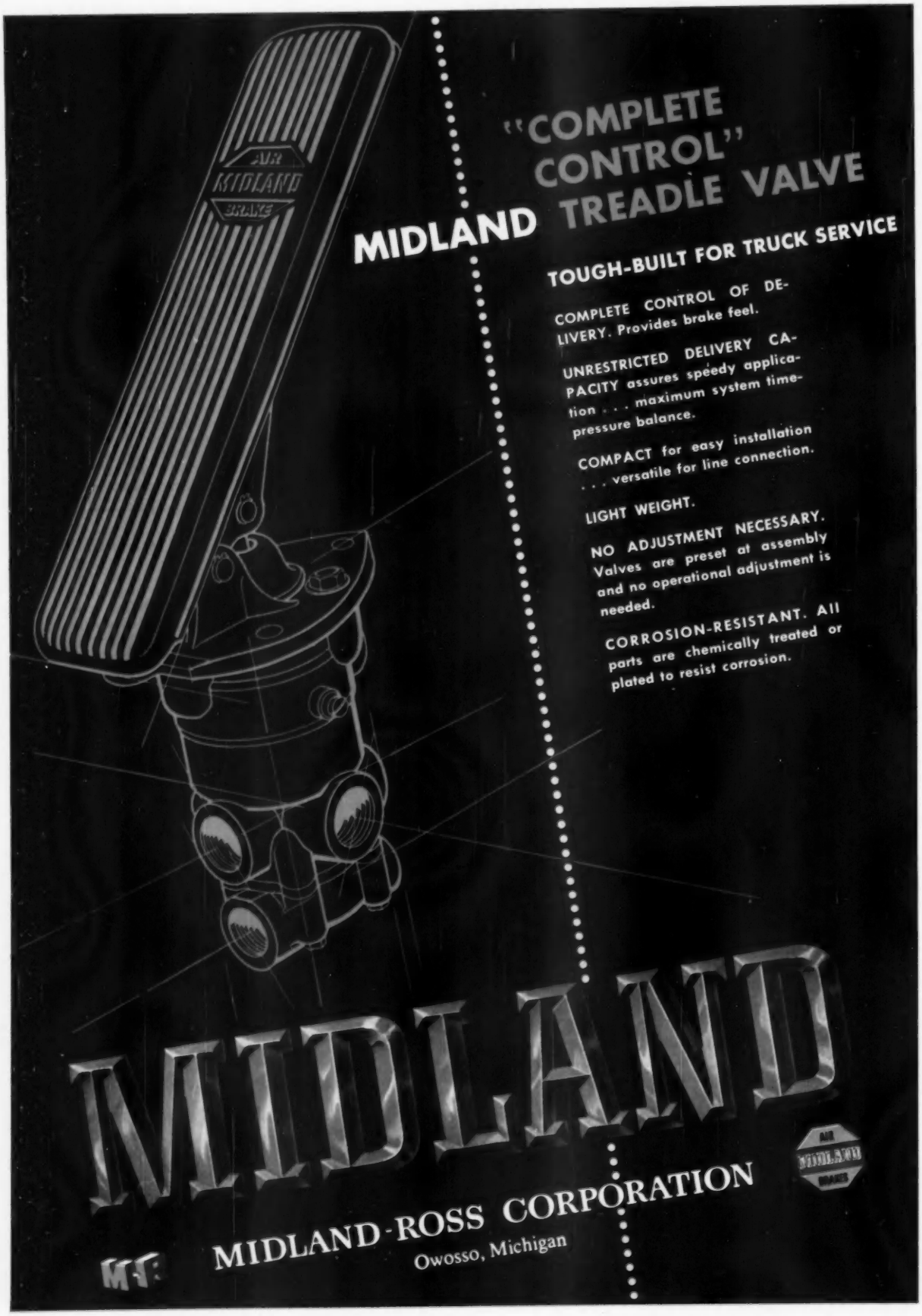
"COMPLETE CONTROL"
MIDLAND TREADLE VALVE
TOUGH-BUILT FOR TRUCK SERVICE
COMPLETE CONTROL OF DELIVERY. Provides brake feel.
UNRESTRICTED DELIVERY CAPACITY assures speedy application . . . maximum system time-pressure balance.
COMPACT for easy installation . . . versatile for line connection.
LIGHT WEIGHT.
NO ADJUSTMENT NECESSARY. Valves are preset at assembly and no operational adjustment is needed.
CORROSION-RESISTANT. All parts are chemically treated or plated to resist corrosion.
MIDLAND
MIDLAND-ROSS CORPORATION
Owosso, Michigan

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a new ring development that promises major advancements through the magic of

MOLYBDENUM!

MOLY-FILLED

Cast Iron Compression Rings

A recent development of Ramco Engineering may soon obsolete many of today's compression rings. While still undergoing extensive testing in Ramco's laboratories, some of the findings are spectacular — particularly in friction reducing benefits.

Through a Ramco-developed process, the channeled face of a cast iron compression ring is filled with four to six thousandths of pure Molybdenum. The channeling leaves ten to twenty thousandths of cast iron at the top and bottom of the ring face. This means that the quick-seating qualities of cast iron are available and that the long wear characteristics of Molybdenum come into play for extra long life.

The Moly-Filled Ring is but one of the many new advances in ring design we'd like to show you. There are others equally interesting. A phone call or letter will put the facts on your desk.

***Piston Rings by* THOMPSON PRODUCTS RAMCO DIVISION**

Thompson Ramo Wooldridge Inc. • P. O. Box 513
Dept. H, St. Louis 66, Mo.

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THE
finest

WAUKESHA TRANSPORT ENGINES

up to 400 HP

- *Easy Starting*
- *Reliability*
- *Simplicity*
- *Smoothness*
- *Economy*

Heavy materials delivery

Heavy-duty hauling

Fire fighting equipment

Inter-city tank trucks

Steep-grade transport

Snow plows and trucks

Transcontinental trailer hauling

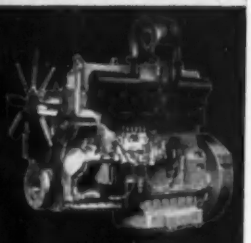
Power for extra-heavy loads

Off-the-highway service

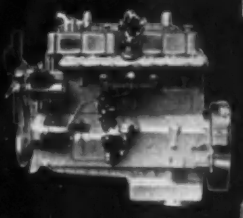
Milk run . . . or *any* run

508

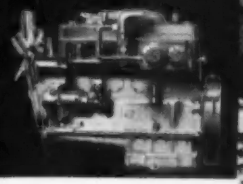
WAUKESHA WAKDBS TURBOCHARGED DIESEL . . .
6¼x6½" bore and stroke, 1197 cu. in. displ., up to 400 hp. at 1800 rpm.



WAUKESHA 145-GZ HIGH OUTPUT GASOLINE ENGINE
5⅞x6" bore and stroke, 817 cu. in. displ., up to 320 hp. at 2800 rpm.



WAUKESHA WAKC BUTANE-PROPANE ENGINE
6¼x6½" bore and stroke, 1197 cu. in. displ., up to 315 hp. at 1800 rpm.



DIESEL
GASOLINE
BUTANE
ENGINES

EXCEPTIONAL PLANT FACILITIES
25 ACRES OF MANUFACTURING SPACE

Write for descriptive literature

WAUKESHA MOTOR COMPANY
WAUKESHA, WISCONSIN
New York • Tulsa • Huntington Park, Calif.
Factories: Waukesha, Wisconsin, and Clinton, Iowa

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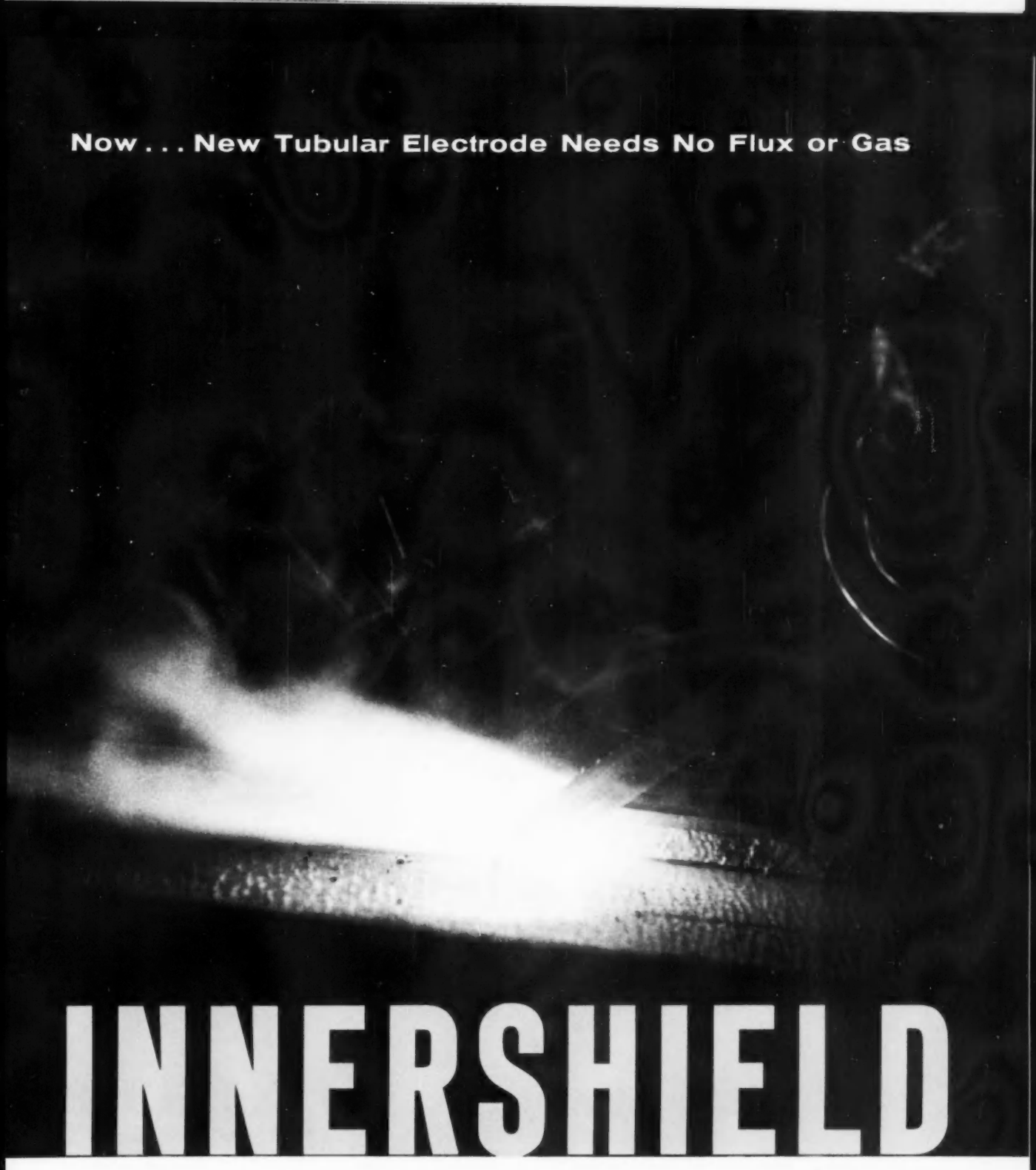
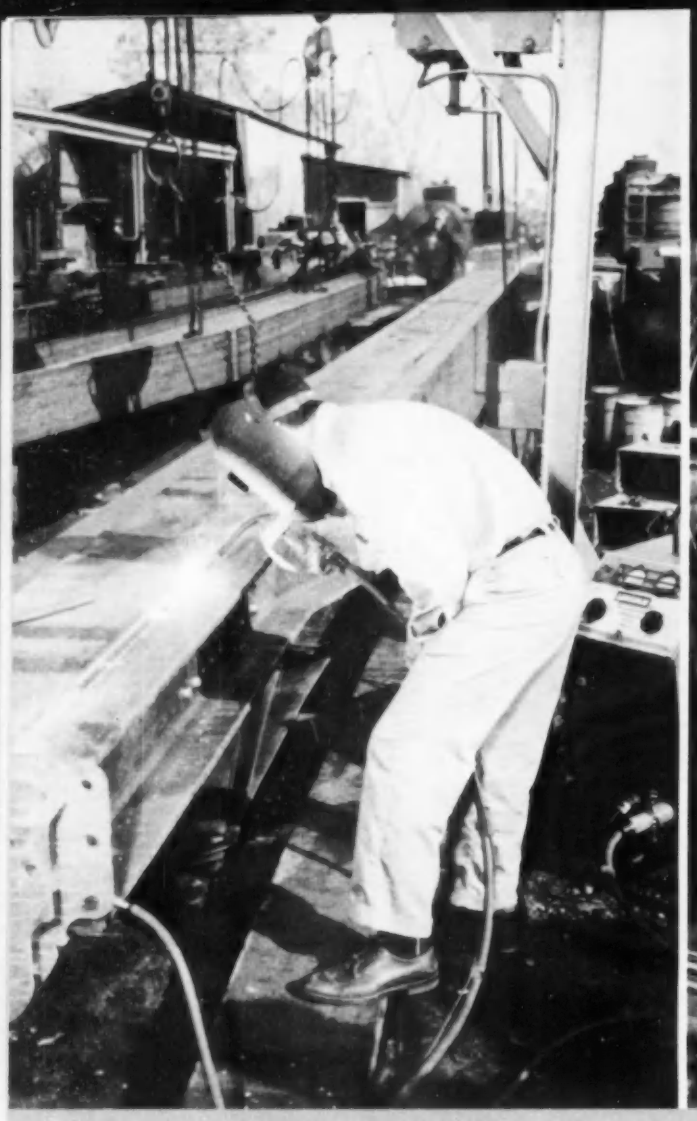
Circle 133 on Inquiry Card for more data ⟶

Now . . . New Tubular Electrode Needs No Flux or Gas



INNERSHIELD

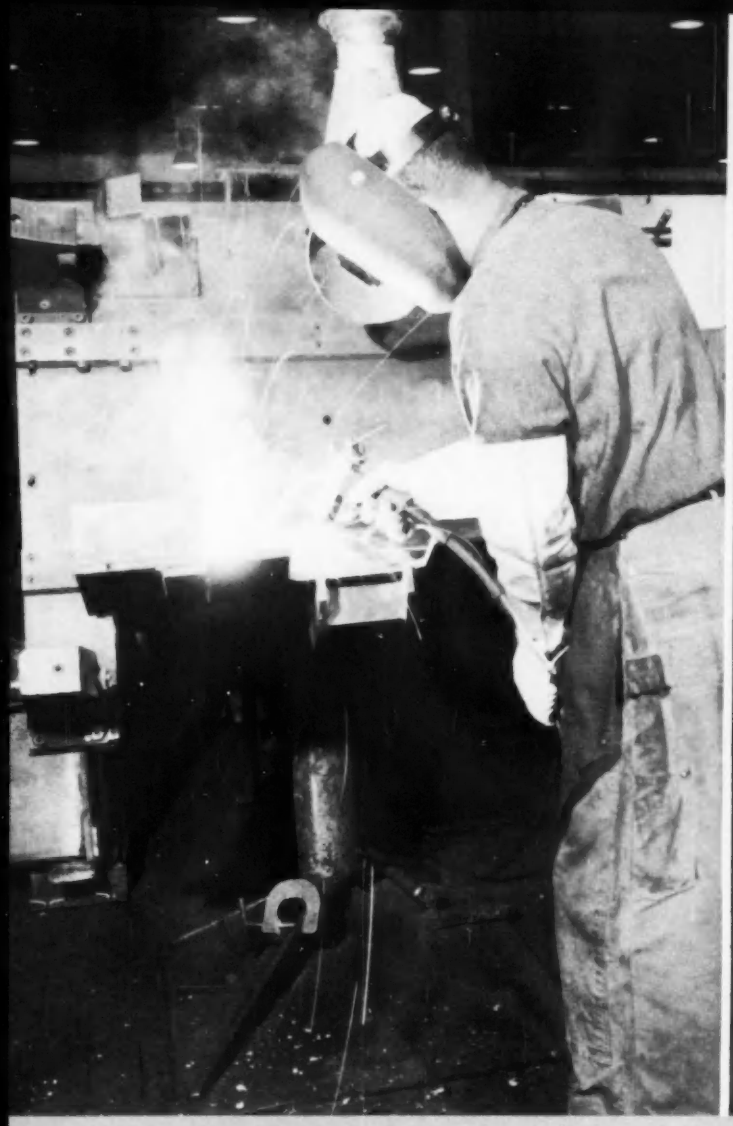
Lincoln's dramatic new welding process–Innershield–uses a special tubular electrode containing all necessary ingredients for welding–filler metal, arc shielding, deoxidizers, fluxes. Needs no CO_2, Argon or granular flux. Two new welders use it–a full-automatic and a semi-automatic called Squirt.



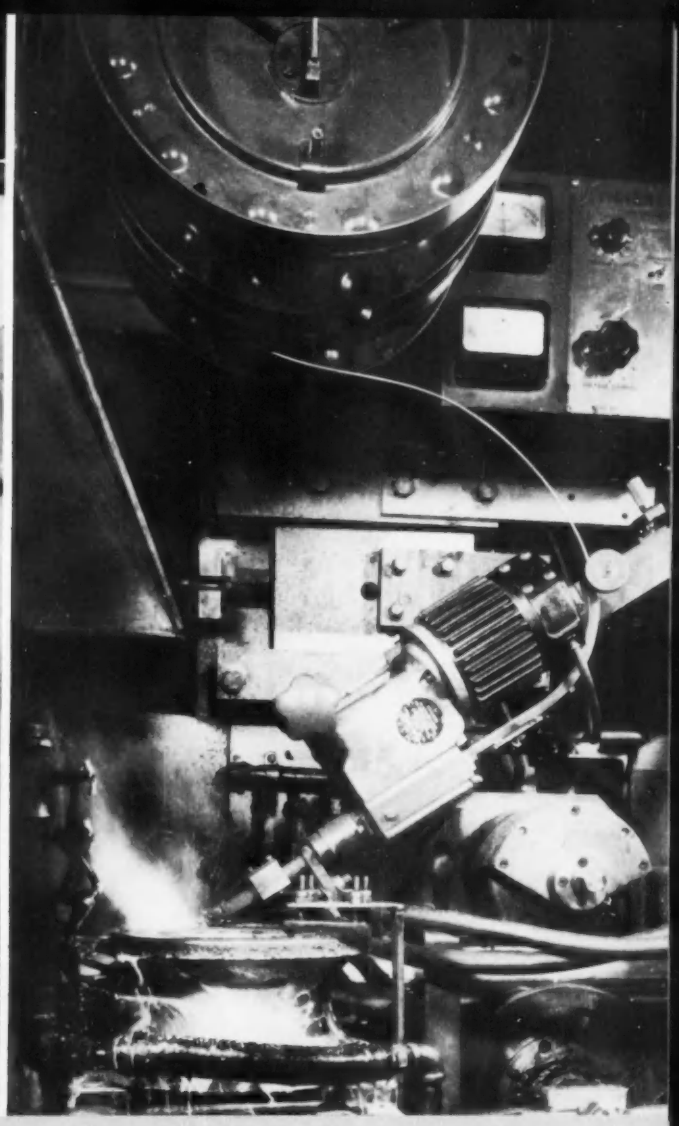
Welding railroad car center sills is easy, fast. The highly efficient, dense and chemically inert conical arc shield is virtually impenetrable by the surrounding air. Welds are sound, stronger than base metal. Visible arc lets operator follow joint easily. Speeds up to 50 ipm possible.

Innershield Squirt is ideal for short, intermittent, single-pass welding on parts such as these building trusses. Innershield electrodes bridge gaps caused by poor fit-up; medium penetration avoids burn-through. Excellent for diversified job shop operations.

THIS IS INNERSHIELD ON THE JOB



Because Innershield Squirt is flexible, easy to use, it replaces manual methods for welding small parts set up in jigs and fixtures. On this job, it increased welding speed by 150%, decreased slag cleaning time, and significantly reduced cost of finished parts.



Here, full-automatic Innershield makes continuous butt weld on 4-inch tubing at 120 ipm. Special electrode eliminates flux used in submerged arc process as well as manifold and piping systems needed for inert gas process. Reduces inventories, purchasing problems, storage space required.

Innershield Squirt is incomparably faster than manual welding both in deposit rate and arc speed. Deposition efficiency is an excellent 85% as contrasted with about 65% for hand welding, 50% for submerged arc. And because there's no stopping to replace electrodes, operating factor is extremely high.

Innershield Squirt is easy to use, too. Even an amateur can pick up the gun and turn out professional welds in ten minutes. We've illustrated (above) a few of the applications where Innershield Squirt is already on the job stepping up production, cutting costs . . . in the job shop as well as on high volume production lines.

See Innershield At Work

Somewhere near you there's probably an Innershield Squirt at work boosting production, cutting costs. Why not have your Lincoln Field Engineer show it to you? Ask him for Bulletin 5300.1 which gives a complete description of the Innershield process, available electrodes and both semi-automatic Squirt or full-automatic equipment. Or write The Lincoln Electric Company, Dept. 1731, Cleveland 17, Ohio.

HERE'S THE GUN THAT LETS AN AMATEUR TURN PRO

Pull the trigger, strike the arc, and you're welding faster than ever before. This gun, made of tough molded plastic, needs no water cooling, is light in weight, and is easy to handle. You have to try it to believe how easy it is to make tough, sound welds . . . fast!

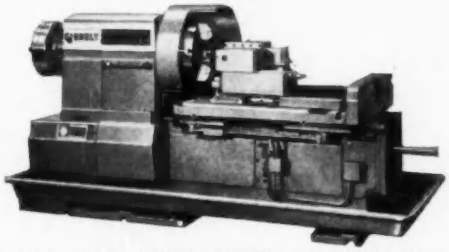
MN-1—RUGGED, COMPACT INNERSHIELD SQUIRT WELDER

Here's a compact, sturdy unit designed and built to hold up under rough on-site conditions. It's not finicky. Put it to work in your shop, shipyard or production line, now! Comes complete with wire feed mechanism, wire reel, input and output cables, gun and controls.

LINCOLN WELDERS

THE LINCOLN ELECTRIC COMPANY
22801 St. Clair Avenue
Cleveland 17, Ohio

SOMEBODY *is doing it for* LESS



MASTERLINE® SIMPLIMATIC Automatic Chucking Lathe—Here's the essence of the "building block" principle: standard headstock and wide, screw-fed platen; standard front, center, rear or auxiliary slides with tool blocks—positioned to handle maximum surfaces per chucking. Add accessories to suit the work—a tailstock, boring bar speeder, single- or multiple-pass JETracer®, back-facing or back-boring attachments for simultaneous front and back machining. Literally, there's no end to *your* opportunities for saving.

Have you considered using a standard "building block" type lathe for jobs now calling for "special" machines? Others have!

Don't buy that "special" before you investigate the Gisholt Simplimatic®. You may save money and precious lead time with the flexibility this *standard* lathe offers.

Standard "building block" tooling elements combine for an infinite variety of arrangements. Operations can often be combined for reduced handling and improved quality. One man can handle multiple units. Floor-to-floor times are cut to a minimum.

Whether your "special" jobs include rings, discs, flywheels, sheaves, bevel gears, motor frames or complex housings, compare your production costs. You, too, can do it for less!

Ask your Gisholt Representative or write for Catalog 1159-C.

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MACHINE COMPANY
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Turret Lathes • Automatic Lathes • Balancers • Superfinishers® • Threading Lathes • Factory-Rebuilt Machines with New-Machine Guarantee

small in size...

BIG in dependability...

Take this arm rest screw, for instance. Only three inches long, yet it is correct in materials and specifications to do the most dependable job. The same applies to National Lock connecting rod bolts, engine head bolts, bumper and wheel bolts, hood latches, catches, plastic connectors, distributor caps and hardware of all kinds. National Lock's design-engineering ability and plant capacity make it a leading supplier of quality hardware, fasteners and plastic components to over 40 different O.E.M. markets. And this means experience at every step of engineering and production . . . diversified experience resulting in lower product costs, better product features and finer product quality. Write us on how we can answer your requirements . . . large or small.

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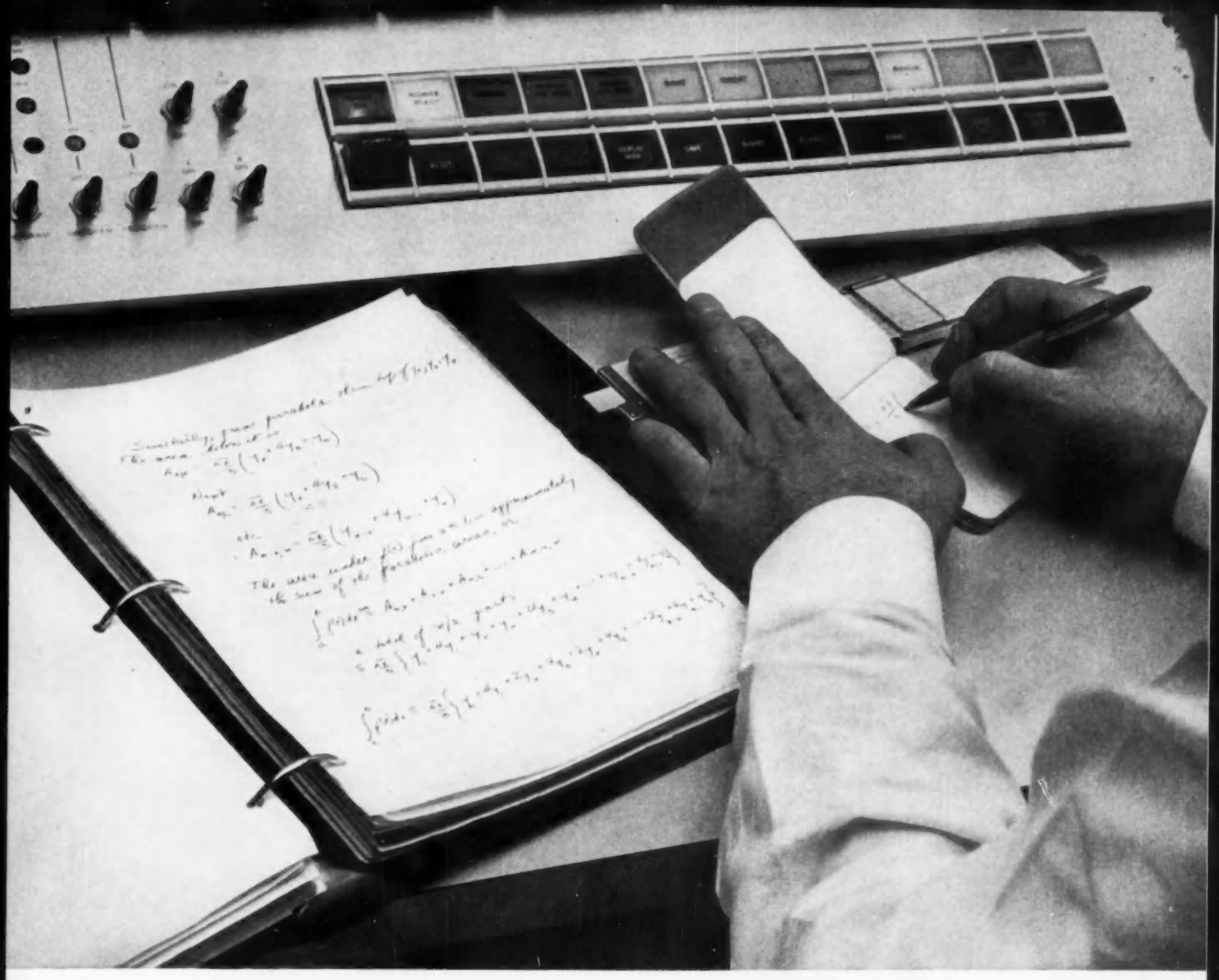

Free engineers for creative assignments with the new low-cost IBM 1620

The IBM 1620 Data Processing System is a low-cost solution to the problem of freeing engineers for their most creative and profitable assignments. Here's why:

EASY TO USE—Just a two-day training class is all you need to put your 1620 into operation. This means no delays in learning to use the 1620 computer.

In addition, you get a wide range of free programming services including FORTRAN and GOTRAN. FORTRAN is the powerful scientific language that lets you solve problems without writing detailed computer instructions. GOTRAN is a simplified language (a sub-set of FORTRAN) that lets you enter simplified problem statements and data into the computer with the solution immediately available, in one simple operation.

FAST—The 1620 solves a set of ten simultaneous equations in only 20 seconds. It inverts a 10 x 10 matrix in just 42 seconds.

POWERFUL—The 1620 inverts a 40 x 40 matrix. With optional additional core storage the 1620 can handle matrix inversion problems of a much higher magnitude.

GET FULL DETAILS—The 1620 is the most outstanding engineering and scientific computer in its price range. A basic installation rents for just $1,600 a month.

To learn how the 1620 can free you for more creative engineering work, call your local IBM representative.

IBM's 1620 is a compact desk-size computer.

IBM®
DATA PROCESSING

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Sectionized Transfer-matic Introduces New Concepts of Processing 4-Cylinder Blocks

A significant forward step in automation has been achieved by a new Cross Transfer-matic which integrates all operations except broaching that are required to finish cylinder blocks of three different horsepower capacities. The multiplicity of operations in a single machine and the fact that the entire line was created by one builder result in large reductions in engineering, materials handling, control circuitry and floor space.

The new Transfer-matic consists of six sections with a total of 121 stations. Three banking conveyors are provided between appropriate sections.

In Sections I and II, most of the heavy metal removing operations are handled. These include straddle milling the main bearings, milling the oil slinger grooves, rough drilling the valve lifter holes, rough boring the cylinders, rough boring the camshaft and milling the ends of the block.

In Section III, the sides are completely machined and the accessory and engine mounting pads are milled.

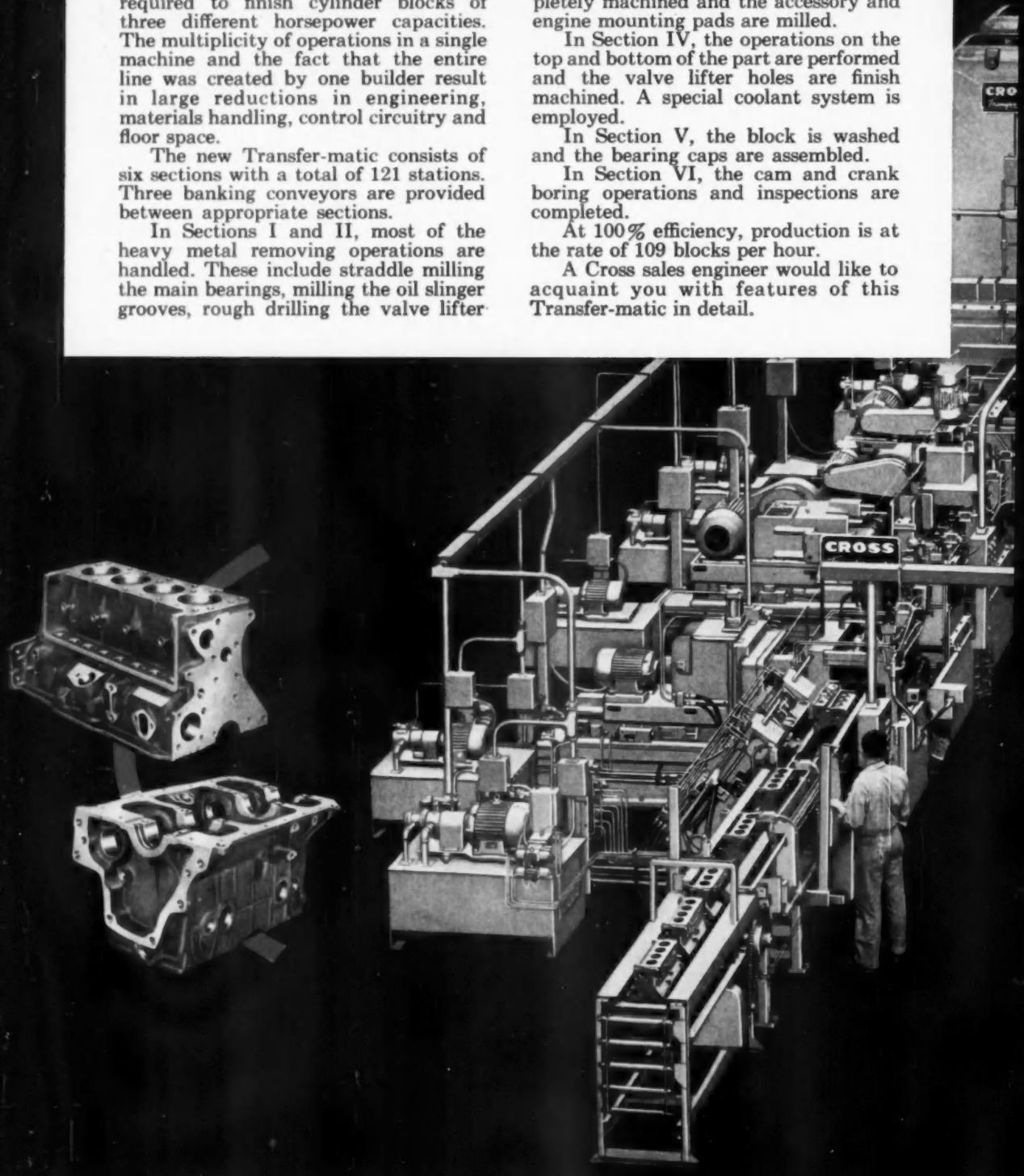
In Section IV, the operations on the top and bottom of the part are performed and the valve lifter holes are finish machined. A special coolant system is employed.

In Section V, the block is washed and the bearing caps are assembled.

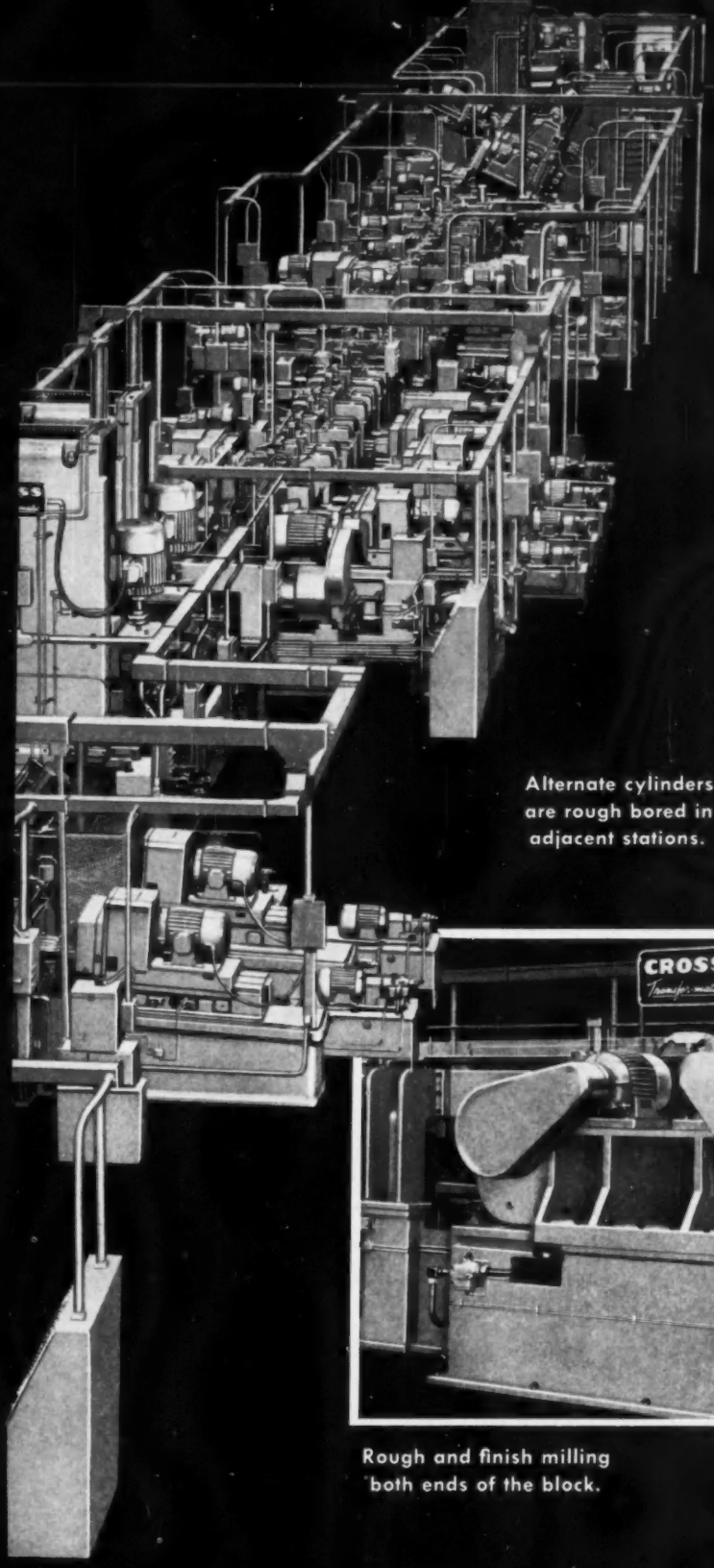
In Section VI, the cam and crank boring operations and inspections are completed.

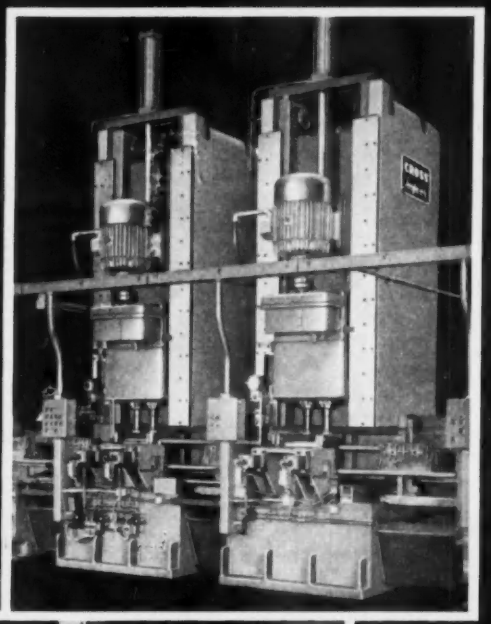
At 100% efficiency, production is at the rate of 109 blocks per hour.

A Cross sales engineer would like to acquaint you with features of this Transfer-matic in detail.

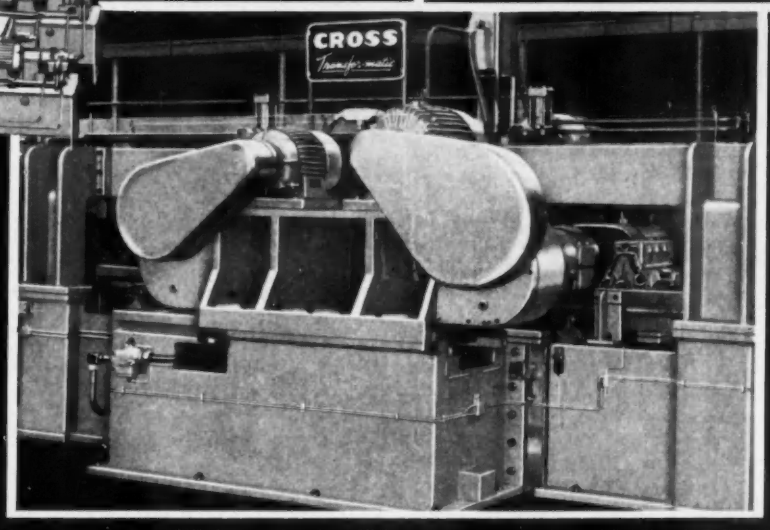


Another Transfer-matic by Cross





Alternate cylinders are rough bored in adjacent stations.



Rough and finish milling both ends of the block.

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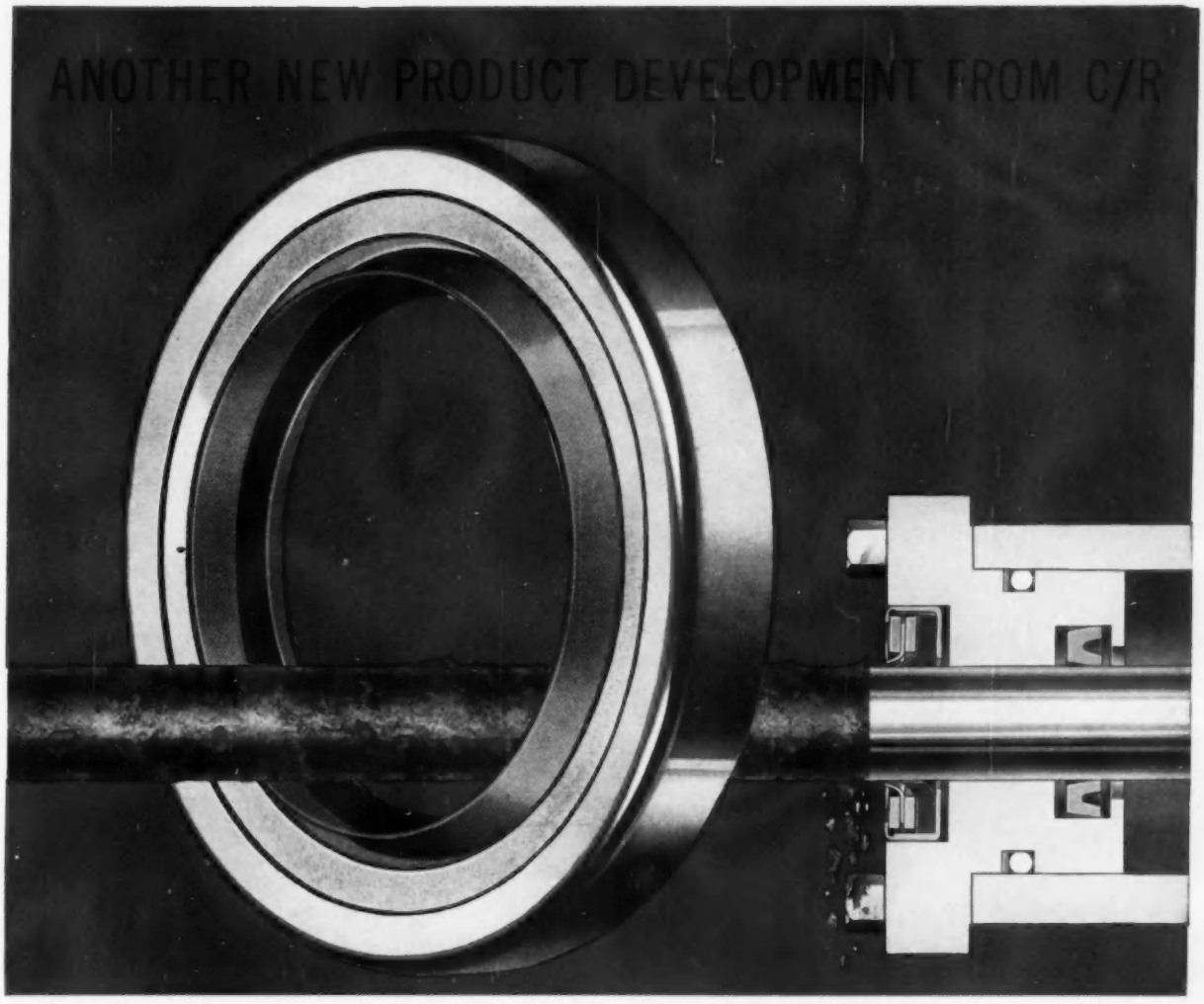

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Sirvis-Conpor mechanical leather cups, packings, boots • C/R Non-metallic Gears.

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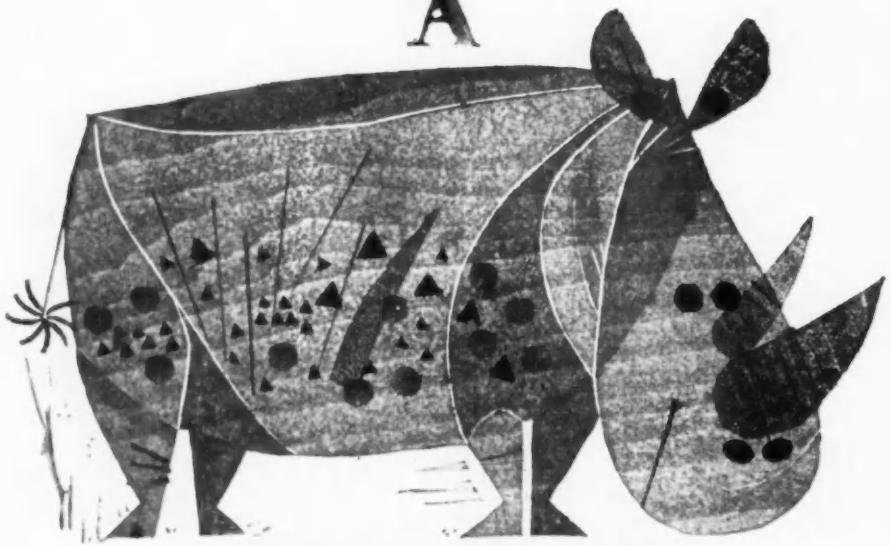

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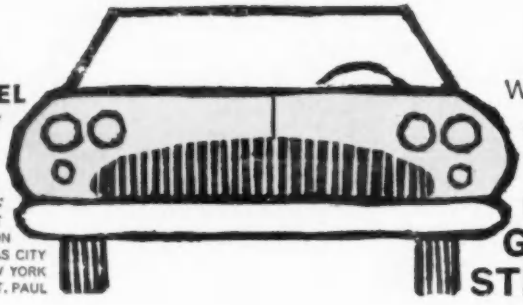

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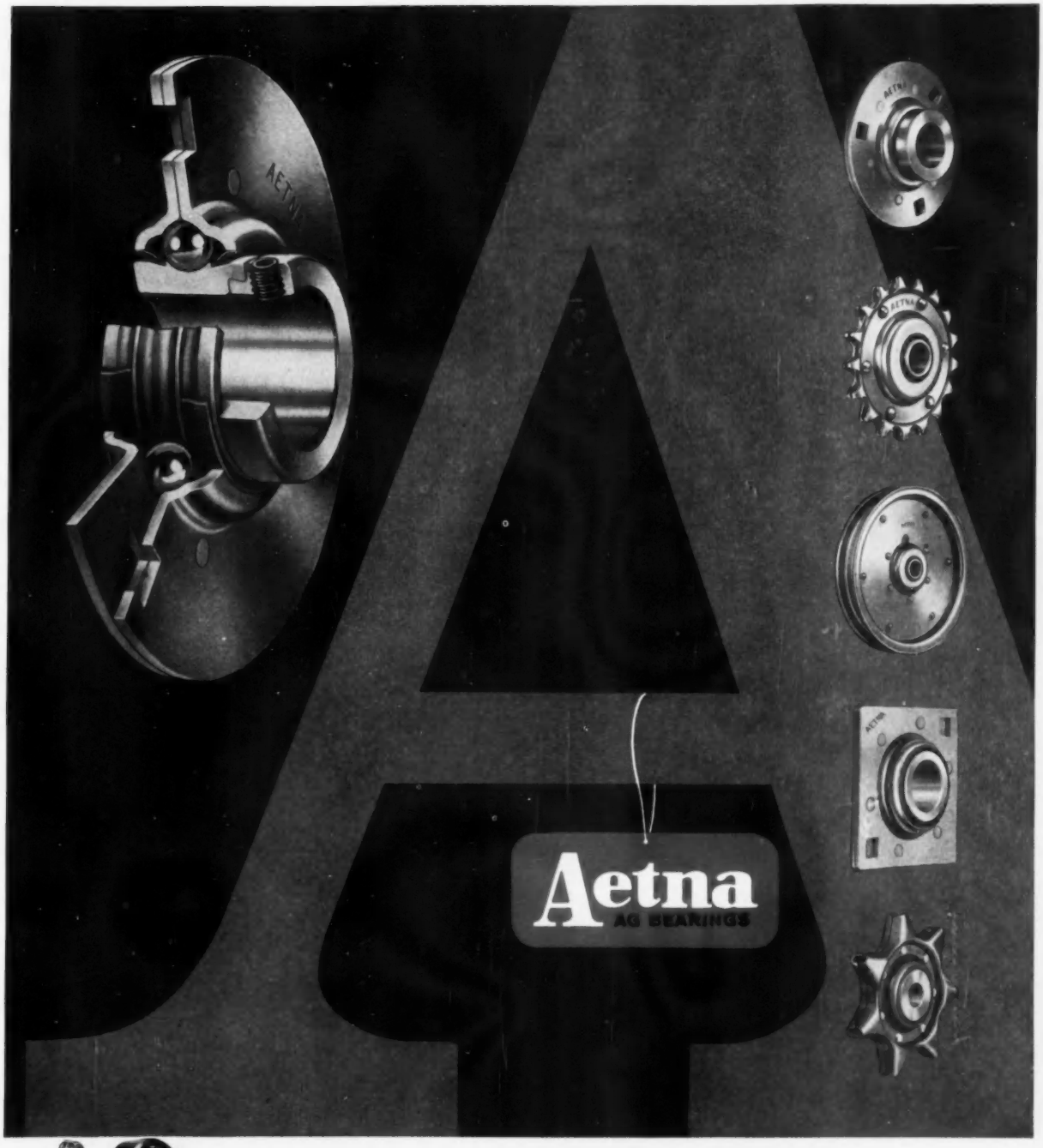

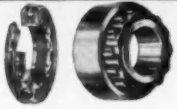

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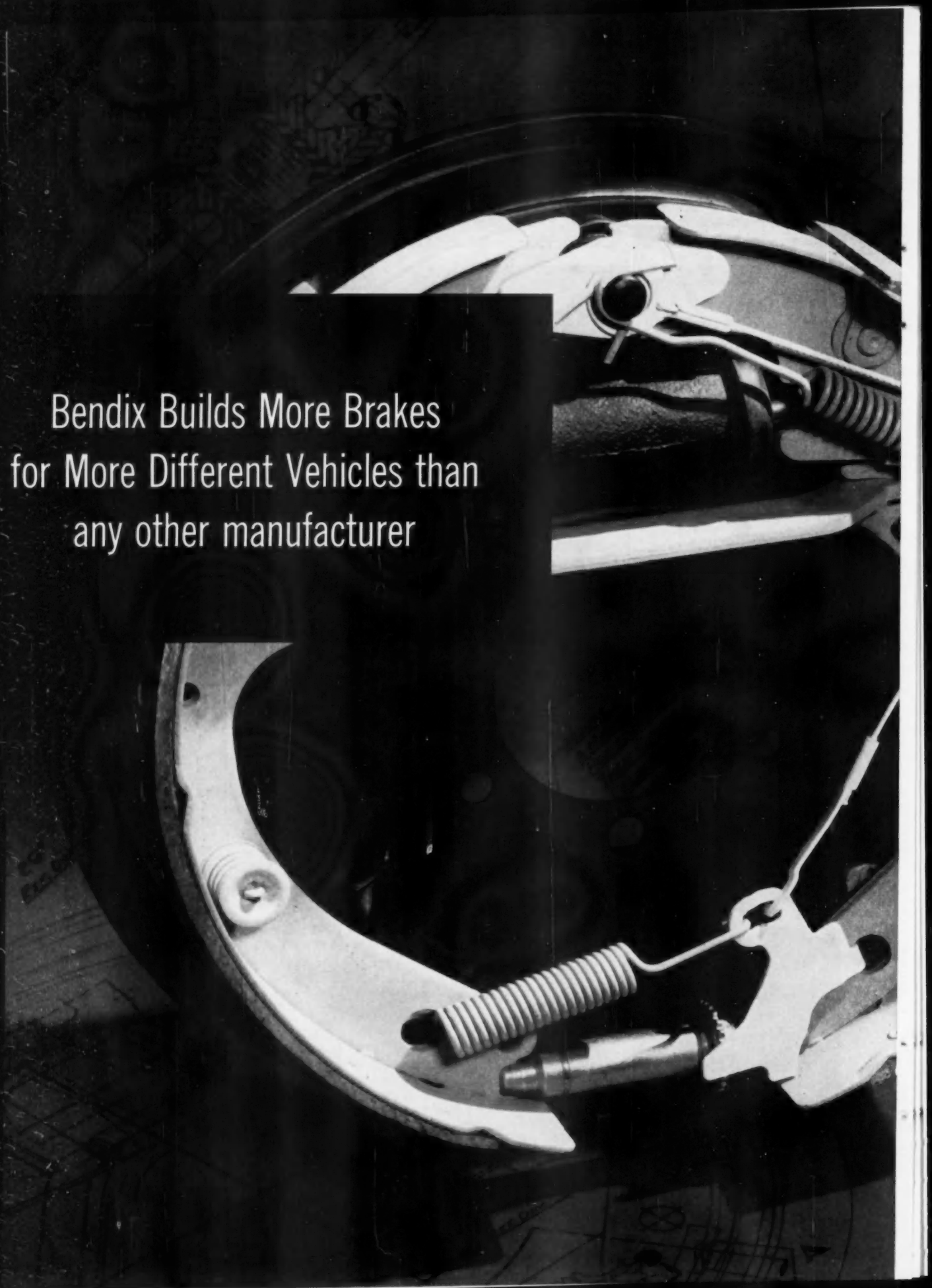
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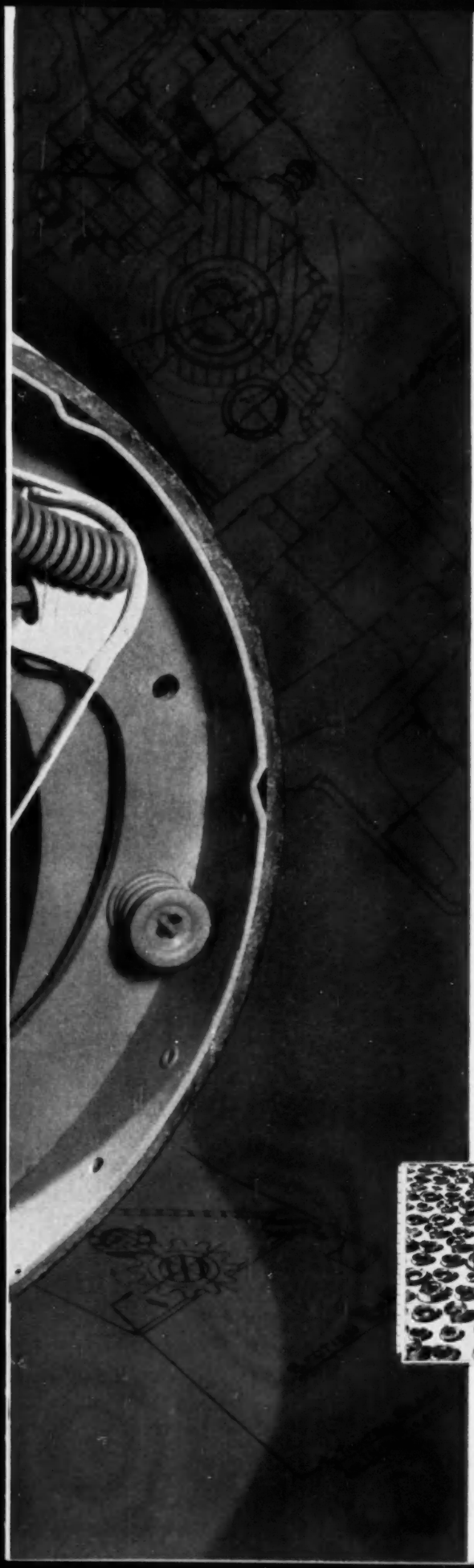

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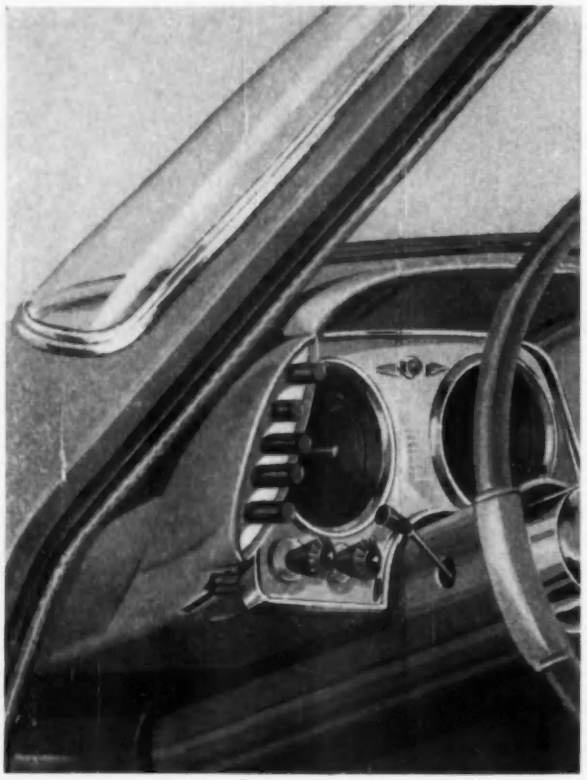
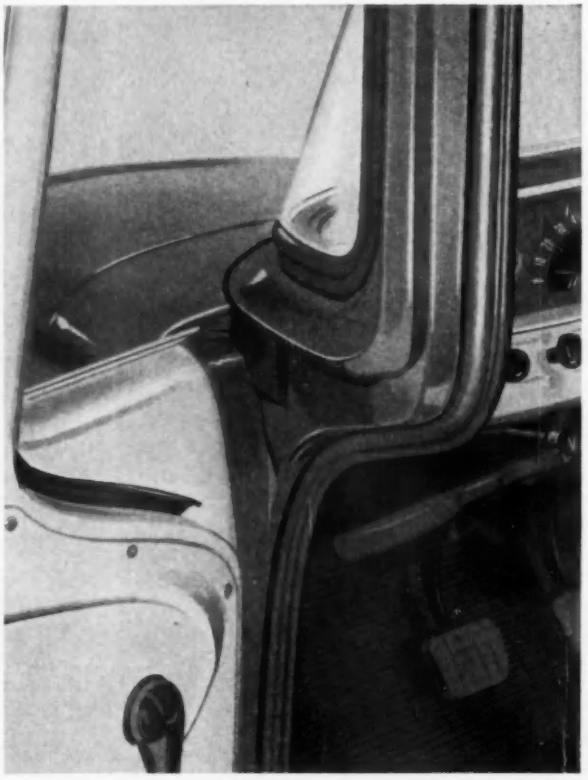


Doors on this fast-selling compact are kept weathertight by a new type of weatherstripping made of extruded closed-cell neoprene sponge. Door seal and windlace are combined in a single piece, resulting in significantly lower production costs.



On this popular line of trucks, unique "self skin" of extruded neoprene sponge permits tighter radius bends to be made without wrinkling. Other applications for this new body sealing material: deck lid seals, roof rail seals, hood lacing, gaskets.

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AUTOMOTIVE INDUSTRIES

March 15, 1961 — Volume 124, No. 6

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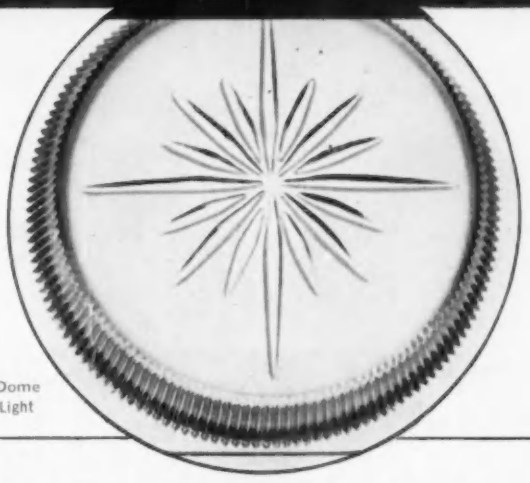

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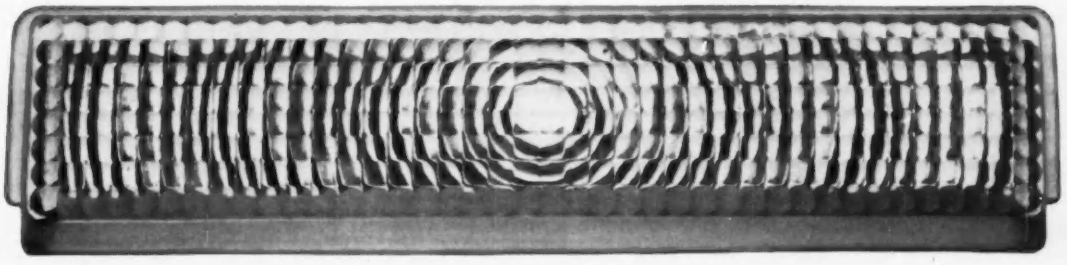

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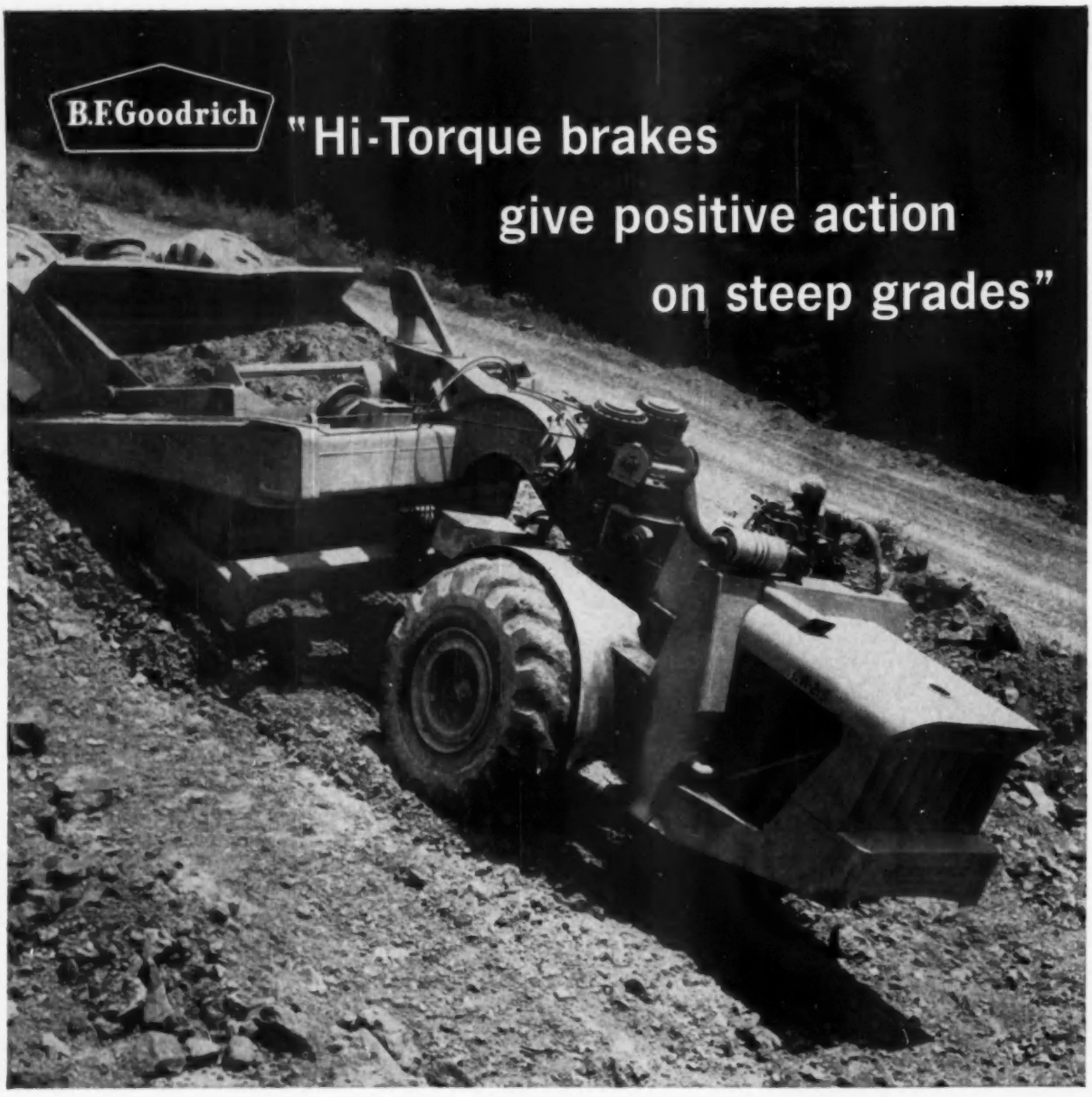
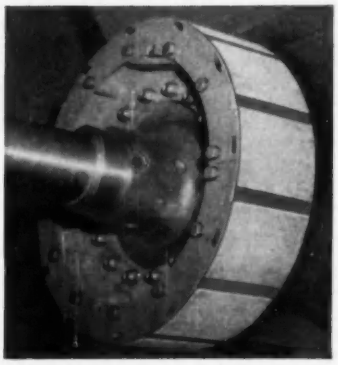


This Curtiss-Wright earthmover, equipped with B.F.Goodrich Hi-Torque brakes, is operated over rough West Virginia terrain where brakes must be applied frequently. The contractor reports "positive braking action on steep grades is the outstanding Hi-Torque feature." Gross weight on this vehicle is 52 tons, with payload varying from 44,000 to 50,000 pounds.

Hi-Torque brakes give heavyweight vehicles adequate safety and controllability—stop vehicles in approximately half the distance required for conventional two-shoe brakes. With this reserve braking power, cycle time can be reduced as equipment is operated in higher gear. Operators can tackle grades usually considered unsafe, since Hi-Torque brakes don't fade, will stop a fully loaded vehicle downhill!

You can use these brakes in *your* heavy-duty vehicles with a minimum of design change. Available in seven basic sizes; operation air-over-hydraulic, or direct hydraulic. For complete information call or write *B.F.Goodrich Aviation Products, a division of The B.F.Goodrich Company, Dept. AI-3, Troy, Ohio.*



Full circle contact with drum is provided by Hi-Torque brakes giving maximum effective braking surface in the same size unit. Hi-Torque stops vehicles twice as fast as conventional brakes.

B.F.Goodrich Hi-Torque brakes

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The stainless gleam of quality

in new fashions for the home

See the many new expressions of stainless beauty and versatility on display—each with its own message of interest to you in the metals field. Note how stainless steel's strength is matched with corrosion-proof luster, easy formability, every degree of surface finish from mirror-bright to satin-smooth. And for your own stainless fabrication requirements, think of SUPERIOR—ready with the grades, deliveries and technical help to serve every need!

Superior
STAINLESS STRIP STEEL

SUPERIOR STEEL DIVISION
OF
COPPERWELD STEEL COMPANY
CARNEGIE, PENNSYLVANIA

For Export: Copperweld Steel International Company, New York

A fresh approach to metal cleaning

Metal parts and assemblies which have undergone machining, grinding, heat treating, forging or press drawing operations usually have to be cleaned prior to the next processing step or final packaging.

A cleaning compound is selected according to the type of soil, its stubbornness and whether the surface has to be chemically clean—as required if plating or enameling are to follow.

Since the development of surface active agents it has been found unnecessary in intra-operation cleaning to use a harsh alkali. Today's metal cleaning compounds seldom contain free caustic, yet they are far more effective than the earlier materials. By combining detergents with mild alkalies there are definite advantages of easier rinsing, better soil dispersion and emulsification, plus minimum resoiling from a used bath.

Excessive heat unnecessary

Temperatures can be lower, too, hence easier on the operators. The same modern cleaner which will remove light soil at room temperature will be more effective at 120°-140°, but it need not be raised to the boiling point, with resultant fumes, steaming and discomfort.

The detergents used in these modern cleaning formulations for use in power washers are non-foaming, therefore do not interfere with maximum spray impinging force which helps dislodge adhering soil.

Rust protection built in

Another modern trend in cleaning compounds is to add a water-soluble rust preventive, to protect against early rusting by leaving a very slight film on the metal—one which does not interfere with subsequent operations. Of course, this is not possible when cleaning before plating or porcelain enameling where a chemically clean surface is required.

Determining the concentration of a cleaning bath and its rate of exhaustion is one of the puzzlers for many a metalworking plant. To be accurate, a chemical titration is more dependable than short-cut "gadgets" sometimes offered. The Houghton technical staff man uses this kit for exact measurement of the strength of a solution. Description or demonstration is available to our customers upon request.

One more improvement in today's cleaners is the property of water softening. These newer products contain sequestering or chelating agents which combine with hard water constituents, holding them in solution and preventing precipitation on the work or in the rinse tank.

This ability of today's metal cleaners to lower surface tension, to protect against early rusting and to soften hard water has resulted in industry's taking a new look at their cleaning practices. Fewer varieties are required because a single cleaner will do a far wider range of work than could the old style free-caustic varieties.

Houghton's new approach to cleaning is typified by our Cerfa-Kleen line of soak tank and power washer compounds—both for cold and hot solutions. If you need a plater's cleaner, or one for removal of inorganic soil, or an acid type, we have those too. **Write E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia 33, Pa.**

Houghton

INDUSTRY'S PARTNER IN PRODUCTION

NEWS

Vol. 124, No. 6

March 15, 1961

Industry Asks Pentagon To End Mobility Gap

By Sherwood H. Egbert
President, Studebaker-Packard Corp.

The automobile industry, with its vast reservoir of skilled manpower, technological know-how, and its capacity for mass production, is our country's first line of industrial strength in the battle for the triumph of Western culture over Communist aggression.

The hard facts are that this Nation must provide the arsenal of tools, of weapons, of productive capacity in any joining of battle against the forces that could be unleashed at any moment against our civilization.

The battle for men's minds continues—in the Far East, in Africa—and on our own shores. Until and if that battle is won, we must carry the "big stick" referred to a half-century ago by Theodore Roosevelt. And the "big stick" of weapon technology today is the ability to quickly arm not only ourselves but our allies. The automobile industry, superbly organized and trained for mass production, stands ready as ever to assume responsibility for meeting governmental and defense requirements.

Today, with our developing concept of total mobility in the missile era, the industry is again prepared to expand its contributions to the defense effort.

Certainly, at a time when it is important that the government receive full value for each dollar spent, it is economical to turn to the companies that have existing knowledge, experience, facilities and manpower.

Sherwood H. Egbert

It is likewise important that existing pools of trained manpower be maintained for any future emergencies along with the facilities with which they are familiar.

It has been reported that the defense budget, as revised by the Kennedy Administration for the next fiscal year, may approach or exceed peak spending in the Korean War.

Our constantly mounting defense requirements arise out of the unrelenting arms race with the Communist powers and swift strides being made in weapon technology. New limited war needs are foreseen as a consequence of Communist strategy in its goal of world domination.

Mobility Necessary

Mobility is an obvious necessity in the missile age for both offense and defense when permanent installations will be prime targets. And mobility is just as obvious a requirement in brush-fire conflicts.

To secure this mobility, it is logical for the government to turn to the automobile industry.

The industry has the know-how for vehicular production—it has the facilities—and it has the as-

sets of proved performance, quality in components and adaptability.

The automobile industry's ability to produce can be conserved by steady employment. Fulfilling defense contracts would assist the industry in maintaining employment during the cycles of commercial production.

Trained labor pools should not be permitted to liquidate. They are national as well as corporation assets.

Studebaker Ready

Speaking for Studebaker, we are prepared to assume our share of responsibility for meeting increased governmental and defense requirements. It will not be an unfamiliar project, for Studebaker has been a transportation supplier for defense needs since the Civil War. Studebaker's military production during World War II totaled $1,200,000,000.

By assisting in solving the production problems of the Pentagon, the automobile industry, in fulfilling defense contracts, also will be aiding in relieving the current unemployment situation. Most important is the fact that this impetus, in solving two problems, will be economical and will save tax dollars for all of us.

No Anti-Smog Devices

Prospects appear dim for early enforcement of California's anti-smog law. Now on the books a year, the law calls for an anti-smog device on every new auto within one year after two such devices are approved.

So far, the State Motor Vehicle Pollution Control Board reports, it hasn't seen a single device. Although nearly 150 inventors and companies say they are working on the project, no one has yet shown the board a set of drawings or a prototype.

Auto Importers Unite

Representatives of most major European automobile manufacturers have formed an association, Automobile Importers Association of Canada. Steering committee members include H. G. Reinstein, vice president and general manager, Mercedes-Benz of Canada Ltd.; D. W. Samuel, general manager, Auto Imports (Swedish) Ltd.; J. E. Campeau, sales manager, European Import Div., Chrysler Corp., and R. A. H. Wilson, vice president and general manager, Peugeot Distribution Ltd.

More Ordnance Orders

The Detroit Army Ordnance District has awarded a $3.3 million contract to American Motors, a $1.6 million contract to Chrysler Corp. and a $764,961 contract to the Monroe Auto Equipment Co.

The AMC contract is for half the anticipated cost of 1000 more Mighty Mite utility trucks. The Chrysler order is for engineering services on M-60 tanks being assembled at the Detroit Tank Arsenal in Warren, Mich. The Monroe order is for 17,000 shock absorbers for tracked vehicles.

$7.4 Million Trucks

Ford Div. received a $7.4 million contract for 5800 pickup trucks from the Ordnance Tank Automotive Command, raising the latest government orders to three contracts totaling $12,571,228. All three orders came within a two-week period.

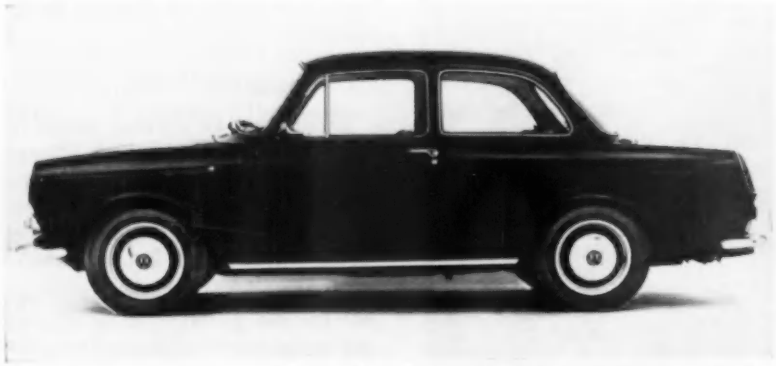
The latest contract will be shared by seven assembly plants building Ford trucks. Delivery will begin by mid-April, with completion 60 days later.

Newberg Is Consultant

William C. Newberg, ousted as president of Chrysler Corp., has taken a job as consultant to the Detroit Broach and Machine Co.

Detroit Broach has about 400 employes, compared with the 75,000 Mr. Newberg had under his direction at Chrysler.

BIGGER VOLKSWAGEN FOR EUROPE



VW-1500, new two-door sedan designed for the European market, is six in. longer than familiar Volkswagen. The sedan and two-door station wagon will be displayed at Frankfurt Auto Show in September. The 1500 will have a 91-cu in. engine instead of the 72.7 cu in. engine in the present model.

NEWS

CONTINUED

Cole Sees Upswing

Edward N. Cole, Chevrolet general manager, says that 1961 automotive sales have started to show encouraging improvement.

Mr. Cole returned recently from a series of meetings with Chevrolet dealers in the East, South and Southwest.

The Chevy chief executive cites several key reasons for his optimism:

(1) His belief that the recession has bottomed out, oversize inventories have been reduced, and public confidence is on the climb.

(2) Extreme optimism of Chevrolet dealers that the market potential for 1961 is still there and can be achieved with hard work and effective selling.

(3) A marked improvement in Chevrolet's February sales over January in both new cars and trucks. This was particularly true of the last part of the month, when the daily rate of sales made a significant rise over the daily rate of the first half of the month.

Used Cars Moving

(4) Definite improvement in used car activity more than the normal seasonal trends, particularly in areas enjoying good weather.

(5) Coming of warm spring weather all over the country will be an added spur to increased auto sales.

A key factor in Chevy's sales strength, Mr. Cole said, is the continuing rise in Corvair demand.

E. C. Quinn, vice president-sales, of Chrysler Corp., reported a sales rise in each successive 10-day period during February. Daily rate of retail sales in the third 10-day period was a 26 per cent increase over the middle 10-day period. The middle 10-day sales rate in turn was 13 per cent higher than the first 10 days.

Ben D. Mills, general manager of Lincoln-Mercury Div., also noted improved sales in each 10-day period in February. "In general," he said, "the prospects for higher auto sales appear to be good. There are indications that an upturn in sales already is under way." Lincoln-Mercury Div. sales for February showed a 16 per cent increase over January.

Highlander Revived

Chrysler Corp. will soon re-introduce its Highlander model. The last Highlander was built in 1954.

The car, in the Newport series, will be available as a sedan or four-door hardtop in five exterior colors and interiors of wool blend MacDuff tartan.

New Mercedes Chief

Walter Hitzinger, 53, a mechanical engineer, has become board chairman of the Daimler-Benz Co. of West Germany. Mr. Hitzinger formerly was general manager of the state-owned Austrian Iron and Steel Works at Linz.

NEW MERCEDES-BENZ HAS SLEEK LINES

Long, low silhouette and sleek lines characterize styling of new Mercedes-Benz 220 SE hardtop coupe. The wheelbase is 108.2 in. Body length is 182 in. and height is 57 in. Powered by a fuel injection, six-cylinder, overhead cam and valve engine, its power plant develops 134 hp at 5000 rpm. The engine's displacement is 133.9 cu in. Bore and stroke are 3.15 x 2.86.

NEWS

CONTINUED

Engines Sales Up

A unit sales increase of 50.4 per cent in the month of January, 1961, over the same month last year, was recently announced by W. L. Pringle, president of Chrysler's Marine and Industrial Engine Div.

"Our new engines are being received enthusiastically in both the marine and industrial markets," Mr. Pringle reported, "and advance orders for the first quarter of this year have already exceeded by nearly 30 per cent the total placed in the first quarter of 1960."

Last year the division developed a new line of marine engines (see AI Feb. 1, Page 60) for shipment in 1961 and also introduced an expanded line of industrial engines that provide the broadest field of application ever offered by Chrysler.

"On the basis of our current order situation and the market outlook for this year," Mr. Pringle predicted, "we expect to realize a 50 per cent gain in unit sales in 1961 compared to the 1960 calendar year."

Army Orders 'Copters

The Army has ordered the first quantity production of the HC-1B Chinook helicopter, a twin-turbine model capable of transporting 33 soldiers at a cruising speed of 130 knots.

Eighteen Chinooks will be produced under a contract valued at $25.3 million with the Vertol Div. of Boeing Airplane Co., Morton, Pa.

The helicopter's T-55-L-5 turbine engines will be obtained from the Lycoming Div. of Avco Corp., Stratford, Conn., under a separate contract. Chinook deliveries will begin in March, 1962, and continue through the following November.

1961 LANCIA FLAVIA MAKES BOW

Introduced in New York City, the Flavia has a 104 in. wheelbase and is 180 in. overall. The engine, which has four cylinders arranged horizontally-opposed, is rated at 78 hp at 5200 rpm.

Ramblers Win Trials

A Rambler American was declared the overall winner in the Pure Oil Economy Trials at Daytonna Beach, Fla., with an average 26.86 mpg at an average speed of 40.17 mph.

In the economy compact car class, Rambler Americans took eight of the first 10 places.

Rambler Ambassador V-8s took nine of the first 10 places in another class. The first place Ambassador had 18.55 mpg at an average speed of 42.02 mph.

Seat Belts for All

All major auto makers have announced that attachments for easy installation of seat belts will be offered on 1962 models as standard equipment. The attachments will eliminate the necessity of special tools and procedures for installing safety belts for front seat passengers.

The industry-wide action was taken to encourage the wider use of the safety devices.

Compact Trucks Score

Compact trucks are accounting for nearly 20 per cent of all Ford truck sales, according to John J. McLean, division truck marketing manager. He reports that the division's Lorain, O., assembly plant is behind in its orders for Econoline vans and buses.

The van is the most popular of the three Econoline models, according to Mr. McLean.

Ford Power Option

Ford Div. is adding a dealer-installed power option to its 390 cu in. high performance engine, which already is rated at 375 hp. The package includes three two-barrel carburetors. Ford's 390, with four-barrel carburetion, was clocked at 153.5 mph last December in a "tire test" at Daytona Beach, Fla.

■ The extra-thick, solid chrome on Perfect Circle piston rings provides vital engine protection that gives you thousands of extra miles of peak power and oil control. That's because Perfect Circle chrome is the hardest, longest-wearing surface you can have—actually doubles the life of rings, pistons and cylinders.

Performance like this is another reason why Perfect Circle rings are preferred for original equipment by leading vehicle and engine manufacturers, preferred for replacement by Doctors of Motors—skilled mechanics everywhere. Rely on Perfect Circle—preferred around the world for performance.

PERFECT CIRCLE

PISTON RINGS · PRECISION CASTINGS · POWER SERVICE PRODUCTS · SPEEDOSTAT

HAGERSTOWN, INDIANA · DON MILLS, ONTARIO, CANADA

Circle 148 on Inquiry Card for more data

AIR AND LIQUID FILTRATION FOR 40 YEARS

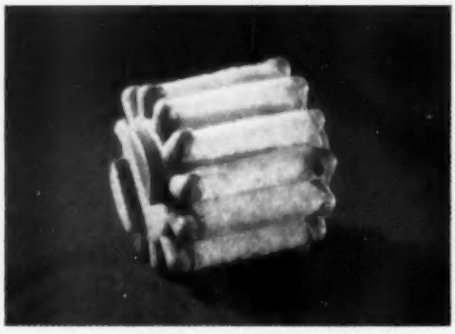
FELT DRY-TYPE AIR CLEANERS and LIQUID FILTERS

...maximum protection against Dirt, Dust, Foreign Particles

Felt dry-type air cleaner with molded ends seals designed for 600 c.f.m. Larger capacity can be handled by multiple air cleaners. Standard sizes available from 100 to 1200 c.f.m.

In-line filter or strainer available for filtering fuel or lubricating oil . . . can also be used to protect pumps on hydraulically-operated equipment. Models available for any desired capacity.

Sump Filter, Model H, designed for 20 g.p.m. This model is one of 8 standard sizes that can be supplied from 5 to 100 g.p.m. Larger capacities can be attained by manifolding units together.



Felt dry-type cartridges for special applications, designed for capacities to 50 c.f.m. Model above designed for 5 c.f.m.

Felt dry-type cartridges for special applications, designed for capacities to 50 c.f.m. Model above designed for 10 c.f.m.

Felt intake filters for use on compressors to remove dust, abrasives, etc., prolong life of the compressors. Single filters available in capacities from 10 to 10,000 c.f.m. Filters can be manifolded together for larger capacities.

Write DOLLINGER CORPORATION, O.E.M. Division, 85 Centre Park, Rochester 3, N.Y.

STAYNEW PROTECTOMOTOR FILTERS

DOLLINGER

- FELT DRY-TYPE AIR CLEANERS FOR INTERNAL COMBUSTION ENGINES
- LIQUID FILTERS AND STRAINERS FOR FUEL, LUBE OILS AND HYDRAULIC SYSTEMS • FELT DRY-TYPE COMPRESSOR INTAKE FILTERS

Circle 149 on Inquiry Card for more data

NEWS

FEATURES

Chrysler's Gas Turbine

'Variable Nozzle' System Demonstrated

Chrysler Corp. has announced a major scientific break-through to give its latest turbine engine the rapid acceleration and engine-braking characteristics long sought in the turbine field.

A scientific development which reacts like an aircraft propeller to automatically change pitch for acceleration or braking and known as the "variable nozzle" system, is the newest addition to the gas turbine.

The new engine was demonstrated publicly for the first time in Washington, D. C., March 5-9 in conjunction with the Turbine Power Conference of the American Society of Mechanical Engineers, co-sponsored by the Department of Defense.

It was introduced in three dimensions . . . in a space-age experimental sports car "Turboflite," in a specially styled Plymouth passenger car, and in a two-and-a-half-ton Dodge truck. The engine was operated in the latter two vehicles during the four-day demonstration program at the Pentagon.

Latest gas turbine engine fits inside Plymouth engine compartment with room to spare. George J. Huebner, Jr., executive engineer-research (shown with engine), said production for passenger cars is not in near future.

Defeats 3 Problems

George J. Huebner, Jr., executive engineer-reasearch in Chrysler's Engineering Div., said the variable nozzle system has licked three problems: (1) the low speed, part-load fuel consumption of gas turbines; (2) lack of engine braking characteristics; (3) the time lag between the pressure on the accelerator and the full power response of the engine.

Mr. Huebner said the armed forces have expressed keen interest in turbine power plants for ground vehicles. He added that large scale production of the new engine for passenger car use is not in the near future.

Here's how the new system works:

The Chrysler engine is a two-stage turbine power plant utilizing hot gas to spin two turbine wheels at speeds of approximately 45,000 revolutions per minute with an inlet temperature of 1700 degrees F.

The first turbine wheel produces

(*Turn to page* 67, *please*)

AI TABLOID

A new piezoelectric force gage for measuring drag force in a shock tube has been developed. The gage, which can withstand forces up to 30 lbs, is described in a Navy research report released to the industry and public through the Office of Technical Services, Business and Defense Service Administration, U. S. Dept. of Commerce.

* * *

The diffusion process of applying successive layers of various protective metal coatings is considered by a leading Russian metallurgical authority as the most promising solution to the problem of protecting iron and steel surfaces from oxidation at high temperatures. The technique is discussed in a study translated into English and published by the National Science Foundation by the Israel Program for Scientific Translations.

* * *

Up to 75 per cent greater efficiency in stripping paint from aluminum and magnesium component parts is possible by modifying standard commercial alkaline-organic paint removers. An Army research report released by the Office of Technical Services, Business and Defense Services Administration, U. S. Dept. of Commerce, says the efficiency can be accomplished by adding high boiling-highflash point glycols and/or triols and hydroxyalkylamines to standard commercial single-phase alkaline-organic paint removers.

* * *

New processes for the production of aluminum directly from bauxite ore omitting the alumina stage of the conventional reduction process have been announced by a Canadian and a French producer. One employs a high pressure and temperature sub-halide reaction, while the second employs a direct carbothermic reduction of aluminum oxides. Both are claimed to reduce installation and production costs.

Polypropylene plastic is proving rigid, tough and chemically resistant enough for use in chemical laboratory ware that withstands temperatures up to 140C.

* * *

The useful life of commercial silicone oils can be extended from three to five times through use of oxidation inhibitors effective in other systems, according to a Navy study of silicone oils at temperatures between 250 and 371C. Also available are a study of the lubrication behavior of liquid metals and an Air Force report on the effect of varying degrees of humidity on the consistency of 22 greases in storage.

* * *

Plastics in the form of glass-reinforced phenolics and polyesters have entered the aircraft industry as gas turbine compressor housings. C. H. Vondracek and R. N. Sampson, of the Westinghouse Electric Corp. Materials Laboratory, revealed details of the new use of plastics rather than traditional magnesium alloys, at a meeting of the Society of Plastics Engineers in Washington.

* * *

Consumption of new rubber in the U. S. in 1960 amounted to 1,555,111 long tons as compared with 1,627,770 long tons in 1959.

* * *

A new expoxy plasticizer gives still greater heat and light stabilization. Uses range from automobile windows to upholstery and shower curtains.

* * *

Dicalcium silicate, a by-product of electric furnace production of ferroalloys and alloying metals, is proving excellent for liming farm soil.

* * *

A fuel cell that converts unpurified air and ordinary hydrogen gas directly into electric energy operates in an acid medium and has passed through experimental demonstrations successfully.

Tempers Predictions

Ford Div.'s new general manager, Lee A. Iacocca, has tempered his earlier predictions on automobile sales for 1961. He now says sales should hit between 6.2 and 6.3 million, including 400,000 to 425,000 imports. Last fall he predicted 6.6 million sales for the industry.

At a press conference, Mr. Iacocca gave a tip on the Ford in the future. He said Ford would have both larger and smaller cars —alluding, no doubt, to the 115-in. wheelbase Ford and the 98-in. wheelbase Cardinal, both in the offing.

He also said "running changes" could be expected—and according to Detroit reports, neither the Cardinal nor the 115-in. "Canadian X" as it is called, will be introduced at the traditional fall announcement. Both are said to be behind schedule.

GM's French Plant

The City Council of Rheims, France, has accepted an offer of $430,000 from General Motors Corp. for land for an automobile plant.

City officials said the plant will be in operation early next year. It is expected to open as an assembly plant and to change into full-scale production in 1963.

Trumpis Promoted

Robert A. Trumpis has been promoted to vice president in charge of manufacturing of Minneapolis-Moline Co. He will be responsible for all manufacturing operations of the parent company and subsidiaries.

(*Continued from page* 65)
the power necessary to operate the compressor, pumps and other components.

Generates Power

The second turbine wheel generates power and transmits it through a reduction gear to the drive shaft and thence to the rear wheels of the automobile. However, before the hot gas reaches this turbine wheel, it must pass through vanes arranged in a circle which directs the gas at the turbine wheel blades to provide maximum thrust effectiveness.

Until now these vanes, which form the nozzle passages, have been fixed in one direction only.

As a result of this, turbines in the past have been plagued by a lack of efficiency under the wide range of operating conditions required for surface vehicles, because the turbine fuel consumption has been dictated by the amount of gas pouring uncontrolled between the fixed nozzle vanes. Maintaining high cycle temperatures is a prime necessity for the efficient operation of any engine.

Varied Vanes' Pitch

Chrysler engineers found that by varying the pitch of the vanes, they could maintain these higher cycle temperatures during all phases of operation and that by almost reversing them, could develop a reverse effect on the drive turbine with a resultant braking effect on the wheels of the car.

Almost three years were required to translate the idea of the variable nozzles into reality. It was accomplished in this manner:

Each of the 23 nozzles is actually an airfoil shaped blade mounted on the end of a shaft. At the other extremity of the shaft is a crank with a ball-shaped end. This ball rides in a groove in a ring. The appearance is somewhat similar to a ball bearing with a slotted outer race.

There are 23 shafts and 23 ball-ends set in the individual grooves. The ring rotates a few degrees, actuated by a rod and a lever from an automatic control piston and this in turn swings the shafts which turn the blades as much as 100 degrees.

Extended tests in the laboratory, on Chrysler's Engineering Proving Grounds and on streets and highways have confirmed that the scientific discovery is now a practical working reality.

More Reliable, Quieter

"Furthermore," said Mr. Huebner, "more reliable and quieter gas turbine engines are possible through the use of variable nozzles because maximum engine torque can be obtained at lower engine speeds.

"It is important to note that this new power plant has been designed as an integrated package for automotive, marine and industrial applications."

The latest turbine engine can be enclosed in a space as small as 27 in. x 27 in. x 25 in., but the automobile version with its accessories and the reduction gear requires a space approximately 36 in. long, 35 in. wide and 27 in. high, which is smaller than the piston engine counterpart.

The weight of the new turbine, including the reduction gear and starter-generator, is under 450 lb.

The engine delivers 140 hp to the drive shaft, and provides the vehicle with performances comparable to that of a 200 hp piston engine. Fuel consumption is comparable to the piston engine.

244,318 Fewer Imports

U. S. passenger car imports declined in 1960 after a four-year upswing, and a new competitive pattern in 1961 and 1962 may handicap any early recovery of imports to the peak level.

Commerce Department statistics disclosed U. S. imports of 444,452 new passenger automobiles valued at $512,974,986 in 1960 compared with 668,870 cars valued at $734,-816,974 in 1959.

Imports were down in 1960 from all of the important supplying countries which have been seeking a market in the United States, especially for small automobiles.

U. S. imports of new passenger automobiles in 1960 compared with 1959 from principal sources:

Sweden—21,062 cars valued at $26,621,399 against 27,010 cars valued at $34,334,972.

United Kingdom — 134,537 cars valued at $175,923,502 against 210,484 cars valued at $262,369,-234.

France—74,503 cars valued at $63,971,748 against 171,285 cars valued at $142,173,960.

West Germany — 187,381 cars valued at $211,585,508 against 205,-799 cars valued at $237,923,528.

Italy—20,832 cars valued at $28,275,518 against 46,629 cars valued at $51,135,648.

Japan—2035 cars valued at $2,-039,413 against 4590 cars valued at $4,460,270.

EUROPEAN ROUND-UP

By DAVID SCOTT • Special Correspondent

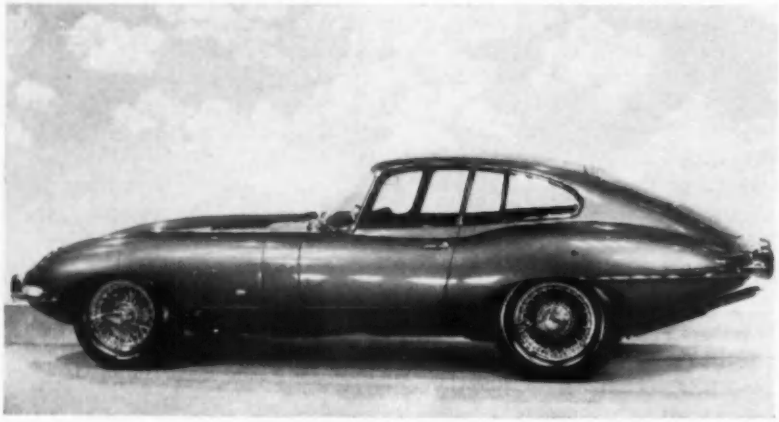
The list of new European cars expected this year is growing. Jaguar may be first off the mark with a 4.2-liter luxury sports model with some novel features, including an electric fuel pump submerged in the gas tank. An MG front-drive tranverse-engined sports car is on the way, as is a 3.8-liter Lagonda by David Brown, derived from the Aston Martin.

Fiat is preparing a Type 1300. There also are rumors of a rear-engined Simca, a Volvo sports model to be assembled in Scotland, a V-8-engined Mercedes, and a new small Vauxhall.

Signs of recovery in the British auto industry have followed the easing of credit restrictions in January, when the period of time payments was extended from two to three years. At the same time, an exceptionally mild winter has hastened the seasonal upturn.

There is a promising increase in home demand, credit sales have climbed back to year-ago levels, and prices for smaller used cars are hardening. As a result, Vauxhall (GM) is back on a five-day week after several months of four-day weeks.

In mid-January English Ford dropped to three days, but now is on five. The British Motor Corp., Pressed Steel and Rootes have upped their production schedules to match the improvement in domestic sales.



Newest Jaguar has 230.6 cu. in. six-cylinder engine that delivers 265 hp at 5500 rpm. and drives through four-speed transmission and limited-slip differential. Electric fuel pump submerged in gas tank eliminates vapor lock. Low-drag body is made as coupe or convertible with detachable hardtop.

But so far there are few signs of revival in Britain's car exports. They have been losing ground in highly-competitive Sweden and Austria, and sales in the expanding Swiss market dropped to 7.2 per cent of the total last year despite a small numerical increase.

Australia has been a major outlet for United Kingdom manufacturers, but falling sales there have caused lay-offs both in the B. M. C. factory in Sydney and at GM-Holden. New Zealand and Finland, whose governments have recently earmarked additional funds for auto imports, are among the few bright spots remaining.

Rootes has slashed the American price of its Hillman by some $200, joining Renault in an effort to stage a comeback through price cuts.

Renault has trimmed production further, mainly because of shrinking American sales. Its European business is holding up, however, and last year sales in Britain reached 23,000, more than double the 1959 figure. Yet the company has closed its assembly plant in London as uneconomic compared with direct shipments from France.

The German picture is generally rosy, with car and truck production climbing to all-time records.

In England, W. H. Dorman has linked up with Fairbanks-Morse of Chicago in a 20-year agreement covering distribution of its Diesel engines in America. Engines are in the 40- to 700-hp range, dovetailing with the units made by the U. S. company.

Another new Anglo-American tie-up is between Lear-Romac and Joseph Lucas, under which the British firm has sales and manufacturing rights for the former's aircraft components, including actuators, pumps, servos, heat exchangers and motors.

Latest news about the Wankel rotary-piston engine is that NSU in Germany will not start production before 1962, since there is still much development work to be completed. Daimler-Benz, interested in the motor, has announced that its studies of it will last at least three years.

Panch Sets World Mark in Daytona 500 With 149 MPH; Pontiacs Win 3 Top Places

By Bill Smyth
Track and Race Editor

Racing history was set by Marvin Panch, driving a 1960 Pontiac, when he captured the 500-mile stock car race at the Daytona International Speedway at the almost unbelievable average speed of 149-.601 MPH, a world record.

The time shattered the Indianapolis record of 138.767 MPH set last Memorial Day by Jim Rathmann.

Fireball Roberts, one of the all-time greats of stock car racing, Panch's team mate, broke record after record while leading the pack for nearly all of the first 187 laps. Sidelined when his starter broke and punctured his oil pan, Roberts' place was taken over by Panch. Roberts drove a 1961 Pontiac.

Henry "Smokey" Yunick, chief mechanic, and veteran of Indianapolis and stock car races, must share the glory with Panch and Roberts, for he had their machines in excellent condition. Both cars were entered by Hines Pontiac, of Dallas, Tex. Panch's winnings totaled nearly $23,000.

The pre-race strategy was for Roberts to visit the pits three times, on the 50th, 100th and 152nd laps. Panch, however, was slated for four pit stops. Yunick's pit crew was superb and had Roberts and Panch out of the pits in less than 20 seconds each time.

Five of the first 10 cars completed the race without changing a tire in one of the safest races ever run.

There were no serious accidents and the caution light flashed only once, on the 182nd lap, when Banjo Matthews, Asheville, N. C., driving a 1961 Ford, crashed into Darel Dieringer, Indianapolis. Matthews' car was disabled, but Dieringer moved away under his own power.

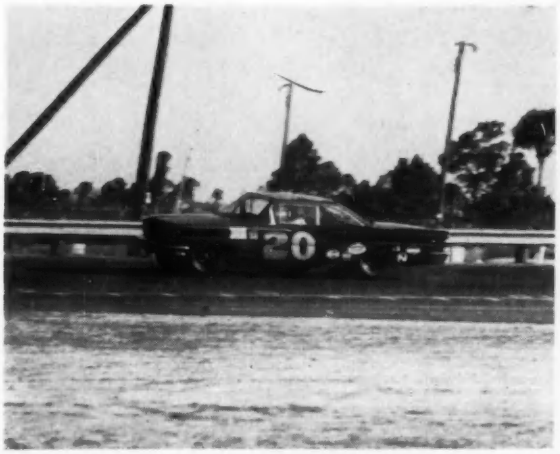
Second place was taken by Joe Weatherly, of Norfolk, Va., in a 1961 Pontiac. His time was less than 15 seconds more than Panch. Paul Goldsmith, winner of the last beach distance race at Daytona, was third. He also drove a 1961 Pontiac. Fred Lorenzen, driving a 1961 Ford, broke the Pontiac sweep by finishing fourth.

Ford's Record Pay

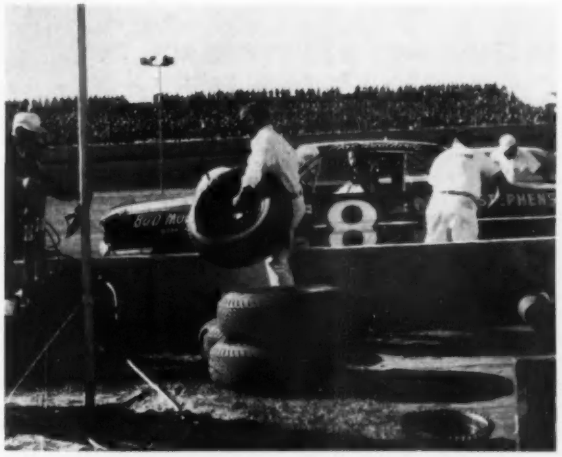
Average weekly and hourly earnings of Ford Motor Co. employes during 1960 were the highest in the company's 57-year history.

Kenneth D. Cassidy, vice president-industrial relations, said average weekly gross earnings of hourly employes last year were $126, exclusive of additional company costs of more than $24 per week for fringe benefits. Comparable weekly earnings in 1959 were $122, in addition to $23 weekly in fringe benefit costs.

Average gross hourly earnings of Ford's hourly employes in 1960 were $3.00 and fringe benefits amounted to 59 cents an hour. The total for 1959 was $3.44.

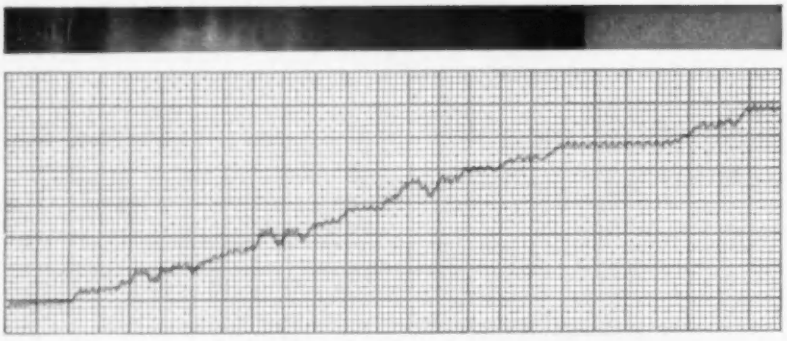


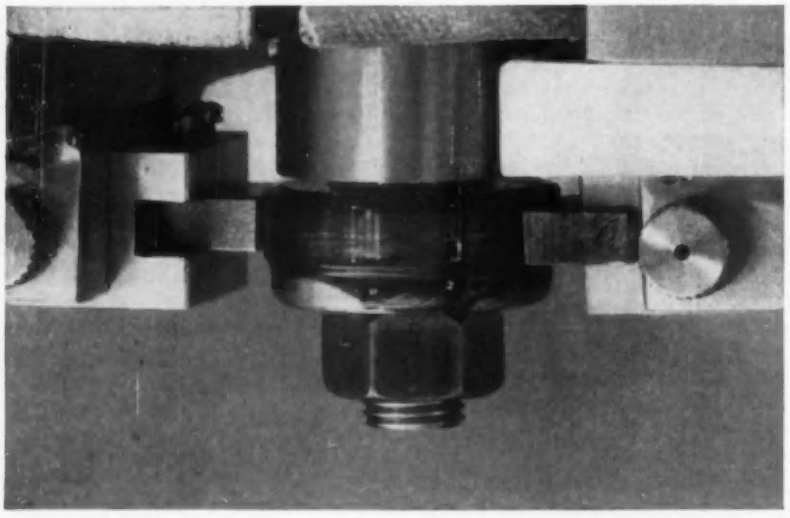
Marvin Panch, winner of third annual "Daytona 500," roars on way to record-shattering triumph. Driving 1960 Pontiac, his average speed was 149.601 MPH.



Races are often won or lost in the pits. Here, crew services Joe Weatherly's 1961 Pontiac. He finished second, less than 15 seconds behind Panch.

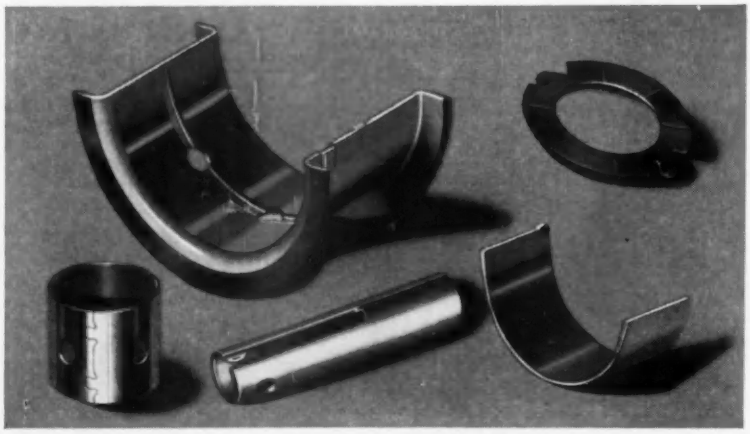
WE TAKE THE PULSE OF BEARINGS ON TAPE TO MAKE THEM EVEN BETTER!





TO TAPE-RECORD THE "HEARTBEAT" OF BEARING METALS UNDER LOAD, WE USE THIS SPECIAL FRICTION AND WEAR TESTER. (left) The result is highly accurate data on the behavior of bearing-metal surfaces, invaluable in our fundamental research into friction. By means of this instrument, we're able to correlate, more closely than ever before, specific alloy compositions with their degree of the "stick-slip" phenomenon (in which one surface sliding over another slides . . . stops . . . slides . . . stops . . . and so on) which accompanies unlubricated sliding action. We can also determine accurately the compatibility of bearing materials with shaft metals in lubricated systems . . . showing us which metal or alloy is most likely to be superior for a given bearing application. In short, this Friction Tester is a fundamental research tool which gives us positive answers to difficult bearing problems, faster than ever before.

ONE REASON WHY F-M SLEEVE BEARINGS and other F-M products give you the finest possible performance — this and the other unusual precision equipment used by Federal-Mogul research. You'll find F-M sleeve bearings used in turbines, engines, and countless other types of power transmission equipment . . . F-M precision thrust washers in pumps, automotive engines and transmissions, motors . . . F-M formed bushings in refrigeration compressors, electric motors . . . and low-cost F-M spacers in motor mounts, machinery, control mechanisms. These are just a few examples.



There's much valuable data in our Design Guides on sleeve bearings, thrust washers, and bushings; and in our brochure on spacers. For your copies, write Federal-Mogul Division, Federal-Mogul-Bower Bearings, Inc., 11037 Shoemaker, Detroit 13, Michigan.

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MEN IN THE NEWS

Metal & Thermit Corp. —William A. Hopkins has been appointed electroplating product specialist.

Hugh C. Quinn, former Detroit Regional Editor for Automotive Industries, has taken a similar post with Advertising Age.

Borg-Warner Corp.— Robert W. Halberg has been appointed associate director - Automotive Dept., Roy C. Ingersoll Research Center.

Ford Motor Co.—Richard L. Johnson has been appointed treasurer.

Budd Co., Automotive Div.—Albert F. Koepcke has been appointed vice president-employee relations.

Fram Corp.—Daniel Fairchild (far left) has been promoted to chief engineer and Chester A. Vander Pyl has been appointed vice president-engineering.

Standard Screw Co. — **Bernard A. Graham** has been named a director and **Hartley Q. Torrison** has been named vice president and controller.

General Motors Corp., United Motors Service Div. — **William M. Walker, Jr.** has been appointed general manager.

Fruehauf Trailer Co., Military Equipment Div. — **Donald H. Hayes** has been appointed quality assurance manager.

General Motors Corp., Chevrolet Div.—**Leonard A. Wood** has been promoted to general production superintendent at the Massena, N. Y., aluminum foundry.

United States Rubber Co.—**Alfred N. Watson** has been elected vice president of marketing services.

Budd Co., Automotive Div. — **W. Sidney Wise** has been appointed controller.

General Tire & Rubber Co.—**Howard Swires** has been named managing director of the plant in Santiago, Chile.

Ford Motor Co., Glass Div.—**Donald R. Tope** has been promoted to general manufacturing manager.

Chrysler Corp.—**Lovell Lawrence, Jr.**, has been named executive engineer of the Advanced Projects Organization.

Mack Trucks, Inc.—**W. Colin Chisholm** has been promoted to product evaluation engineer.

Performance Measurements Co. — **William Christensen** has become a member of quality control equipment and inspection test group.

Parker Seal Co. — **George Meyer** has been promoted to vice president-manufacturing.

Landis Machine Co.—**A. R. Margin** has been named export sales manager.

Chrysler Corp., Service Parts and Accessories Div.—**James F. Mitchell** has been promoted to general plants manager.

Mather Spring Co.—**T. R. Cameron** has been named chief industrial engineer and **John Lauer** has been appointed plant engineer.

Bliss & Laughlin, Inc.—**Elven R. Davis** has been named general manager of Pacific Coast operations.

Ford Motor Co., Ford Div. — **Dr. Donald N. Frey** has been promoted to product planning manager.

Motec Corp. — **Robert Rittmaster** has been elected board chairman.

Chrysler Corp. — **Robert D. Armstrong** has been named general manager - Market Representation and Dealer Enterprise.

National Malleable and Steel Castings Co.—**Arthur M. Wehrmann** has been named personnel director.

Ford Motor Co.—**C. H. Arnold** has been appointed dealer relations manager.

Pratt & Whitney Co.—**Daniel C. McCarthy** has been promoted to executive vice president.

Firestone Tire & Rubber Co. — **Ernest T. Handley** has been appointed managing director of research.

Necrology

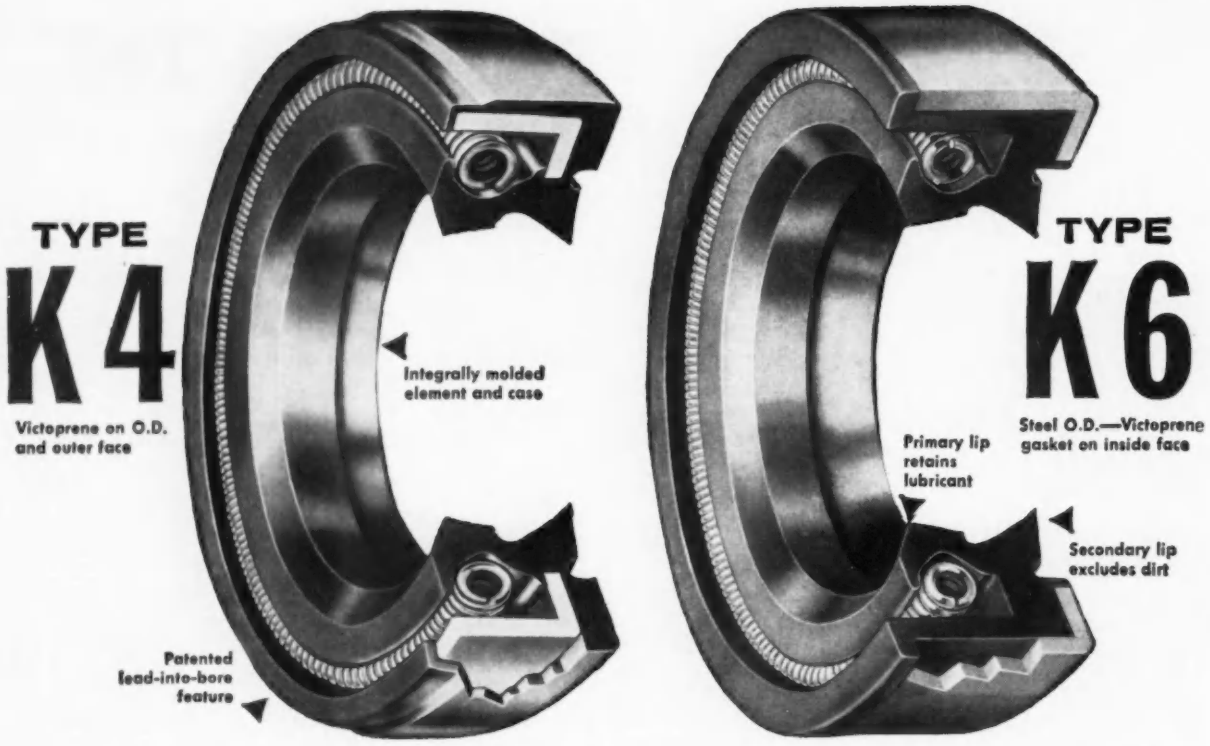
Leo M. Butzel, 86, banker, authority on corporation law and in the early days of the automotive industry the representative of Ford, Durant, Chrysler, Dodge and Fisher, died Feb. 27 in Palm Beach, Fla.

Emmett A. Starks, 55, purchasing agent for the Ford Motor Co., died Feb. 23 in Buffalo, N. Y.

Frederick de Peyster Townsend, 60, former secretary of the Curtiss Wright Corp., died Feb. 20 in Bangkok, Thailand, while on a world cruise.

Jacob L. Slusser, 76, retired superintendent of the tool and die division of Peninsula Metal Products, died Feb. 17 in Detroit.

Edward B. Goodnow, 83, pioneer manufacturer of automobile components, died Feb. 16 in Detroit.



Newest design for compact dual-lip sealing

Two types . . . as narrow as ¼ inch

In Type K4 Victoprene oil seal and its variant, Type K6, Victor offers a highly improved version of compound element shaft sealing. The two types accommodate varying installation and bore sealing needs, yet provide identical shaft sealing efficiency in the smallest housing space.

Check the design features. See how these seals can enhance your specifications for all types of machinery or automotive applications. You'll like their moderate price, too—and fast availability in all standard sizes! See your Victor Oil Seal Engineering Catalog No. 306.

DUAL SEALING SURFACES—Inner lip designed for maximum fluid retention. Outer lip excludes foreign matter or confines a secondary lubricant.

VICTOPRENE ELEMENT—Developed of improved Buna N synthetic rubber for balanced resistance to lubricants, heat, and age deterioration.

PRE-LUBRICATION CAVITY between lips provides for permanent lubrication on installation. Reduces frictional drag; extends seal life.

SPACE-SAVING NARROW WIDTH—Patented one-piece, integrally molded element and case construction permits most compact seal housing.

POSITIVE SPRING LOCATION—Molded groove in sealing element holds garter spring in proper place to keep uniform pressure on shaft.

POSITIVE BORE SEALING—*Type K4* has bonded-to-case Victoprene on O.D. and outer face. Patented lead-in feature aligns seal for easy installation. *Type K6*, for metal-to-metal installations, has steel O.D., with integral gasket on inside face for bottom of bore seal.

TYPICAL APPLICATIONS—Wheel bearing seals on automotive vehicles, farm and road machinery, etc.; crankshaft; pinion; automotive transmission (rear extension housings); speed reducers; winches, etc.

K4 and K6 seals supplied without spring where it is not required

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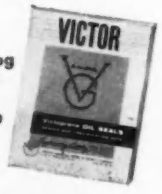

OIL SEALS • GASKETS • PACKINGS • MECHANICAL SEALS

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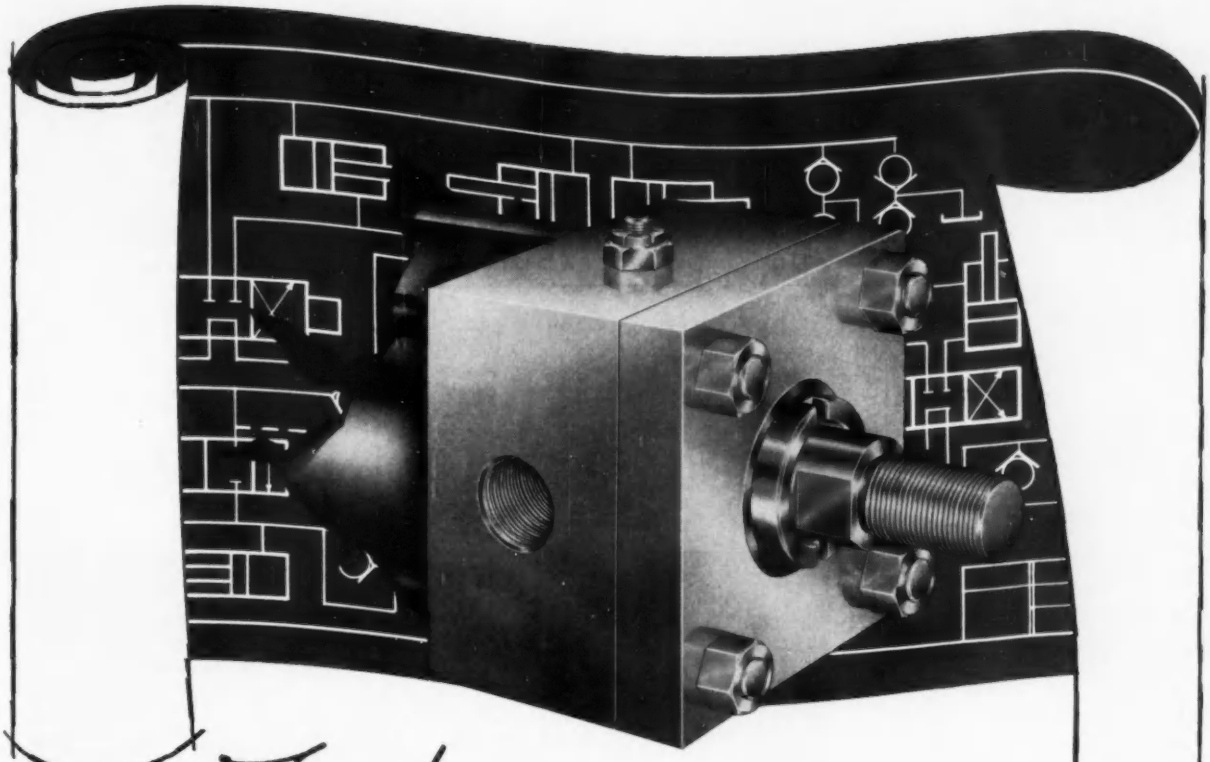

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From its blueprint stage to its maintenance engineering requirement sheet, your product will assure MORE power drive precision and service, if T-J cylinders are specified. T-J's complete line too, from the Spacemaker to the new replaceable Squair Head, can be the answer to any power problem. Write or call The Tomkins-Johnson Company, 2425 W. Michigan Ave., Jackson, Michigan, today!

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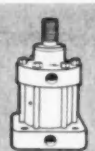
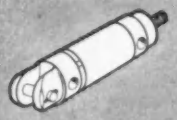
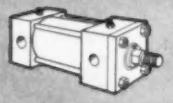


STANDARD HYDRAULIC

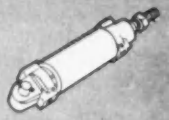
STANDARD PNEUMATIC



AIR and HYDRAULIC SPACEMAKER



AIR and HYDRAULIC SQUAIR HEAD



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(Advertisement)

R B&W FASTENER BRIEFS

RUSSELL, BURDSALL & WARD BOLT AND NUT COMPANY

Technical-ities

By Fred E. Graves

Fastening of joints in corrosive environment

For a fastener to stand up in a corrosive environment it must either be coated, or made from an anti-corrosive metal.

THE METALLIC COATINGS

The "workhorse" applications are satisfied most economically with SAE Grade 2 or Grade 5 fasteners. Required outdoor durability is achieved with a plated or a hot galvanized finish. Hot galvanizing complicates good thread fits, costs more than plating in the popular size range, but gives much greater protection than any commercial plating.

A heavy galvanized coating is not recommended on highly stressed fasteners. If you need the high strength of Grade 5 bolts and want them corrosion-resistant, zinc plating should be your first choice. Certain conditions may require cadmium, nickel or copper plate.

THE ENDURING METALS

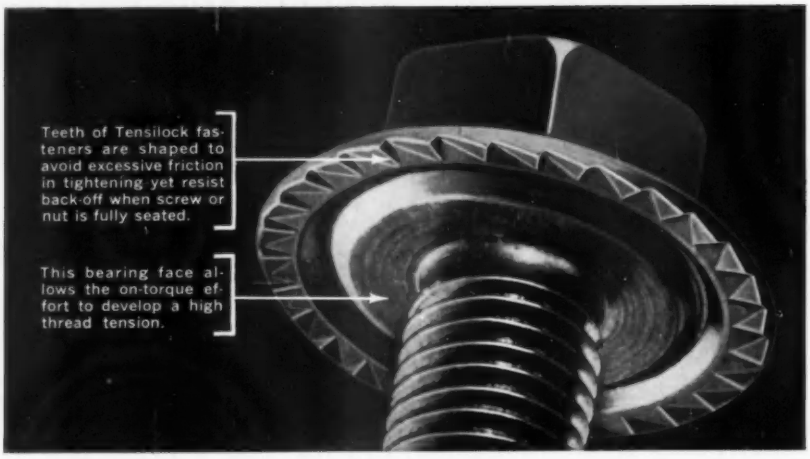
While each metal poses problems in certain applications, stainless steel, aluminum, and silicon bronze all offer distinct advantages.

Silicon bronze is popular for electrical uses due to its unusual strength, resistance to stress-corrosion, good conductivity.

Aluminum fasteners afford light weight as well as excellent conductivity. Anodized, they provide various colors; better corrosion resistance.

Widely used for fasteners, the 18-8 grade stainless steel assures good strength and excellent corrosion resistance in most atmospheres.

How Tensilock® Screws clamp tight, lock tight


Teeth of Tensilock fasteners are shaped to avoid excessive friction in tightening yet resist back-off when screw or nut is fully seated.
This bearing face allows the on-torque effort to develop a high thread tension.

TENSILOCK screws belong in the same league as high strength hex screws. With the same on-torque effort, the Tensilock units develop about 90% of the thread tension usually developed by the latter. Thus, they *both* make strong joints.

THREAD TENSION = CLAMPING FORCE

In theory, the higher the thread tension, the stronger the joint and the higher the inherent ability of the fastener to stay tight. In practice,

Screw Diameter		¼	⅜	½
Thread Tension (lbs.)	Tensilock	2,750	6,750	12,400
	High Strength Hex	2,975	7,250	13,300
On Torque (inch lbs.)	Both	120	420	1,000
Off Torque (inch lbs.)	Tensilock	150	525	1,250
	High Strength Hex	95	330	800

you derive these benefits by torquing a high strength screw close to its *yield strength*. But what if you need high thread tension plus *extra* assurance that joints will stay tight? Then you have a job for Tensilock units. Not only do they develop the high thread tension, but also have an extra (and *integral*) locking device.

OFF-TORQUE = LOCKING POWER

By design, loosening torque of Tensilock fasteners exceeds tightening torque by 25% or more. This is an effective "lock." It gives that extra margin of safety against vibratory loosening.

To sum up: RB&W's Tensilock screws are stronger than Low Carbon Hex Screws; compare with High Strength Hex Screws in clamping force; are superior to them in locking action. Suggestion: For a strong locking *bolt*, use with Tensilock Nut. Send for Bulletin TL-2. Russell, Burdsall & Ward Bolt and Nut Company, Port Chester, N. Y.

Plants at: Port Chester, N. Y.; Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. Sales office and warehouse at: San Francisco, Calif. Additional sales offices at: Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas.

an Editorial

A Formula for 1961 Profits

COLONEL WILLARD F. ROCKWELL, Chairman of the Board of Rockwell-Standard Corp., recently provided a concise formula for profits in his statement of 1960 sales and earnings figures for his company. He said that efficient operations resulting from the company's ultra-modern productive equipment, coupled with a close watch of controllable operating costs, had enabled the company to earn an amount exceeding the regular cash dividend by more than 20 percent.

HE CONTINUED, "I HAVE SAID BEFORE that our $100 million spent in the last 10 years for modern, more efficient plants would pay off—and in 1960 it certainly did—in our industry I am confident that no one's costs are lower. I have also commented before that our company does not believe in taking business at a loss, which I am reasonably sure others were doing in 1960 and are still doing for that matter."

IN THE VIEW OF COLONEL ROCKWELL, many factors point to a reversal of last year's downward economic trend. He anticipates that although improvements may develop slowly in the economic outlook as 1961 progresses, the year may end on a considerably stronger tone than that of 1960. He also expects that more realistic pricing policies in the industry may appear."

STATED BRIEFLY, THE FORMULA FOR PROFITS represented by the example of this company, consists of three parts. First comes plant modernization to use the most efficient equipment. Secondly, a firm control of costs is necessary. Third, realistic pricing must be used. Combined, such policies add up to a capability to prosper even during a year of generally adverse and downward national business trends.

REALISTIC PRICING SEEMS NOW TO BE the most important target for improvement of policies of operation during the second quarter of 1961. Indications of trends in this direction are appearing among reports of price trends for many industrial materials, metals and components. By the end of the year, probably it will be quite apparent that current prices for most industrial products are at virtually bargain counter levels. Colonel Rockwell rendered a real service to industry by pointing out that taking business at a loss is not good business for either the seller or the buyer.

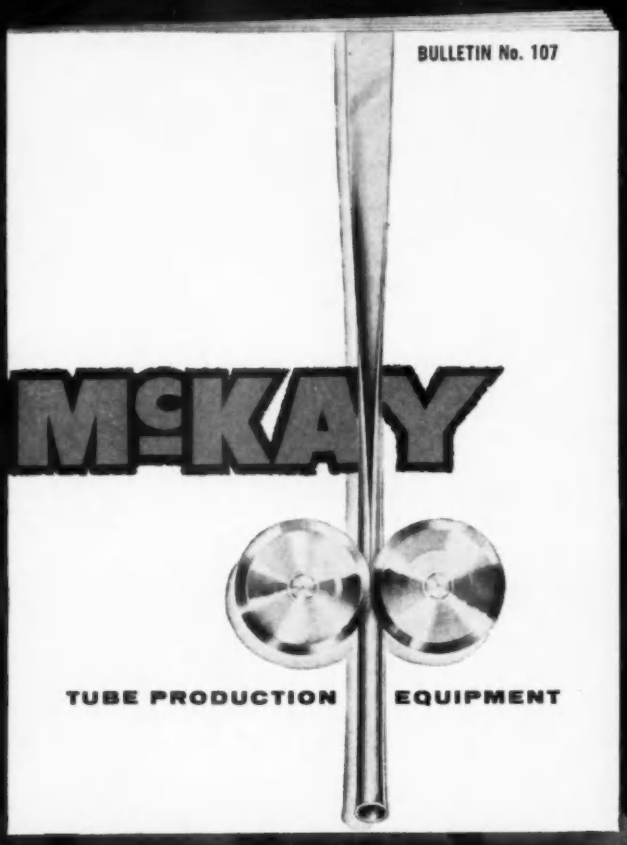
Hartley W Barclay

Editor and Publisher

TO GET THE

LAST WORD

IN TUBE PRODUCTION EQUIPMENT...



For tube and pipe makers who are feeling the profit squeeze here are forty pages of the latest in high volume, low operating cost production equipment. From steel handling to finished product packaging, this equipment is engineered to minimize tube and pipe production costs — by America's foremost designer and builder of packaged metal forming and fabricating lines. To reserve your copy, write direct or clip and mail the handy coupon below.

...WRITE

McKAY MACHINE

McKAY MACHINE COMPANY, YOUNGSTOWN 1, OHIO

Please send me a copy of McKay Machine Bulletin #107.

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1961 AUTOMOTIVE INDUSTRIES STATISTICAL ISSUE

MOTOR VEHICLES section

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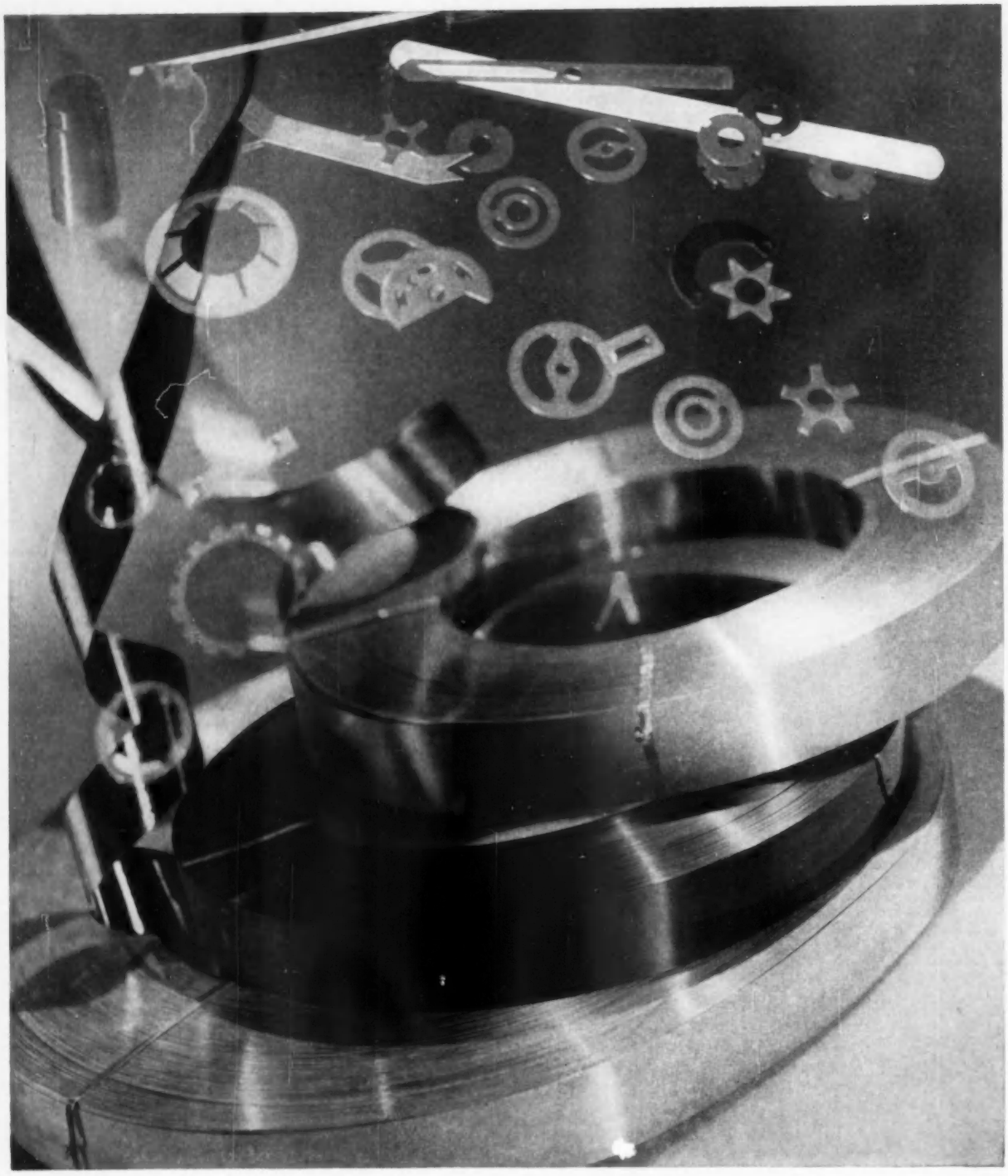

Quality in Ascendancy

The superiority of the vast number of products that are – and can be made from Roebling Cold Rolled Flat Spring Steel is a fact known throughout all industry.

You pay for mechanical and dimensional uniformity when you buy flat spring steel . . . you get it when you buy Roebling.

For information on how our products can help yours, write Roebling's, Wire and Cold Rolled Steel Products Division, Trenton 2, New Jersey.

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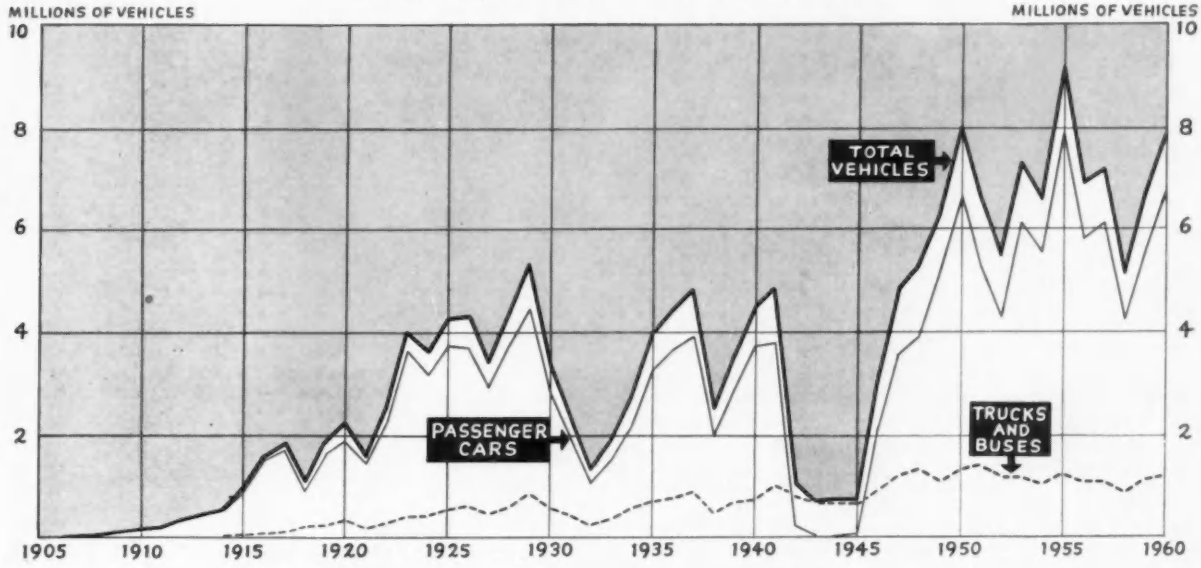
Annual Motor Vehicle Factory Sales, 1920-1960

In Units and Their Wholesale Value, U. S. Plants

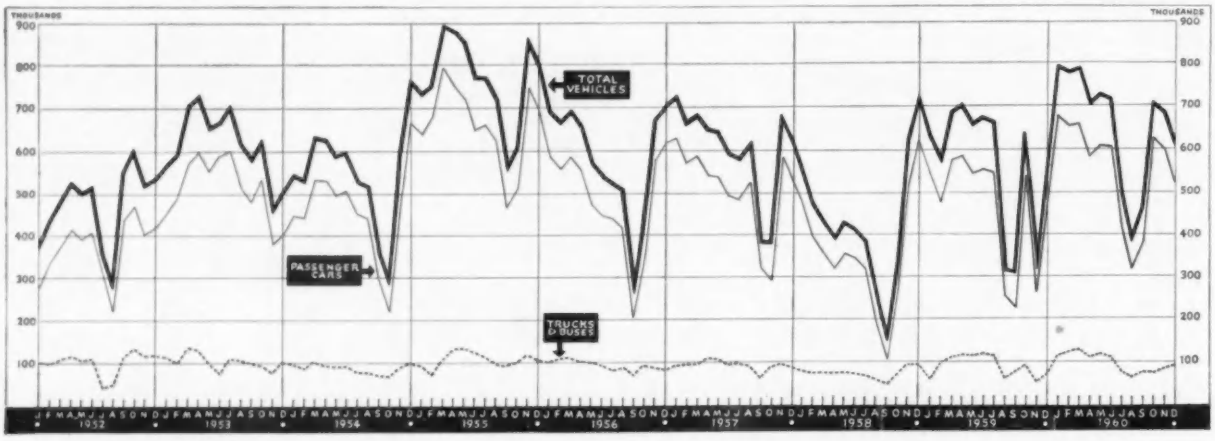
As reported by the Automobile Manufacturers Association



Year	PASSENGER CARS Number of Units	PASSENGER CARS Wholesale Value†	PASSENGER CARS Average Wholesale Price	TRUCKS AND BUSES Number of Units	TRUCKS AND BUSES Wholesale Value†	TRUCKS AND BUSES Average Wholesale Price	TOTAL Number of Units	TOTAL Wholesale Value†
1920	1,905,560	$1,809,170,963	$949	321,789	$123,249,410	$1,315	2,227,349	$2,232,420,373
1921	1,468,067	1,038,191,037	707	148,052	166,070,810	1,122	1,616,119	1,204,261,847
1922	2,274,185	1,494,513,991	657	269,991	226,049,658	837	2,544,176	1,720,563,649
1923	3,624,717	2,196,272,116	606	409,295	308,537,929	754	4,034,012	2,504,810,045
1924	3,185,881	1,970,096,559	618	416,659	318,580,580	765	3,602,540	2,288,677,139
1925	3,735,171	2,458,370,026	658	530,659	458,400,277	864	4,265,830	2,916,770,303
1926	3,783,987	2,640,064,519	598	516,947	452,123,435	875	4,300,934	3,092,187,954
1927	2,936,533	2,164,670,891	737	464,793	420,130,624	904	3,401,326	2,584,801,515
1928	3,775,417	2,572,599,143	681	583,342	460,108,903	789	4,358,759	3,032,708,046
1929	4,455,178	2,790,614,309	626	881,909	622,533,897	706	5,337,087	3,413,148,206
1930	2,787,456	1,644,083,152	590	575,364	390,752,061	679	3,362,820	2,034,835,213
1931	1,948,164	1,108,246,698	567	432,262	265,444,618	614	2,380,426	1,373,691,316
1932	1,103,557	616,860,347	559	228,303	137,624,157	603	1,331,860	754,484,504
1933	1,560,599	773,424,963	496	329,218	175,380,863	533	1,889,817	948,805,826
1934	2,160,865	1,140,478,174	526	576,205	326,781,688	567	2,737,070	1,467,259,862
1935	3,273,874	1,707,836,325	522	697,367	380,997,330	546	3,971,241	2,088,833,655
1936	3,679,242	2,014,747,225	548	782,220	463,719,466	593	4,461,462	2,478,466,691
1937	3,929,203	2,240,912,620	570	891,016	537,314,633	603	4,820,219	2,778,227,253
1938	2,019,566	1,241,032,295	615	488,841	329,917,646	675	2,508,407	1,570,949,941
1939	2,888,512	1,770,231,597	613	700,377	489,786,701	699	3,588,889	2,260,018,298
1940	3,717,385	2,370,654,083	638	754,901	567,820,414	752	4,472,286	2,938,474,497
1941	3,779,682	2,567,205,996	679	1,060,820	1,069,799,855	1,008	4,840,502	3,637,005,851
1942	222,862	163,813,559	736	818,662	1,427,456,801	1,744	1,041,524	1,591,270,360
1943	139	101,799	....	699,689	1,451,794,475	2,076	699,828	1,451,896,274
1944	610	446,704	....	737,524	1,700,928,939	2,306	738,134	1,701,375,643
1945	69,532	57,254,655	823	655,683	1,181,955,532	1,803	725,215	1,239,210,187
1946	2,148,699	1,979,781,084	921	940,866	1,043,247,276	1,109	3,089,565	3,023,028,360
1947	3,558,178	3,936,017,000	1,106	1,239,443	1,731,713,000	1,397	4,797,621	5,667,730,000
1948	3,909,270	4,870,423,000	1,246	1,376,274	1,880,475,000	1,366	5,285,544	6,750,898,000
1949	5,119,466	6,650,857,000	1,299	1,134,185	1,394,035,000	1,229	6,253,651	8,044,892,000
1950	6,665,863	8,468,137,000	1,270	1,337,193	1,707,748,000	1,277	8,003,056	10,175,885,000
1951	5,338,435	7,241,275,000	1,356	1,426,828	2,323,859,000	1,629	6,765,263	9,565,134,000
1952	4,320,794	6,455,114,000	1,494	1,218,165	2,319,789,000	1,904	5,538,959	8,774,903,000
1953	6,116,948	9,002,580,000	1,472	1,206,266	2,089,060,000	1,732	7,323,214	11,091,640,000
1954	5,558,897	8,218,094,000	1,478	1,042,174	1,660,019,000	1,593	6,601,071	9,878,113,000
1955	7,920,186	12,452,871,000	1,572	1,249,090	2,020,973,000	1,618	9,169,276	14,473,844,000
1956	5,816,109	9,754,971,000	1,677	1,104,481	2,077,432,000	1,881	6,920,590	11,832,403,000
1957	6,113,344	11,198,379,000	1,832	1,107,176	2,082,723,000	1,881	7,220,520	13,281,102,000
1958	4,257,812	8,010,366,000	1,881	877,294	1,730,027,000	1,972	5,135,106	9,740,393,000
1959	5,591,243	10,534,421,000	1,884	1,137,386	2,338,719,000	2,056	6,728,629	12,873,140,000
1960*	6,674,796	12,163,601,000	1,822	1,194,475	2,297,549,000	1,923	7,869,271	14,461,150,000

* Wholesale values partly estimated. † Beginning with year 1937, standard equipment is included in the values reported. A substantial part of trucks and buses reported comprises chassis only, without bodies: hence the value of bodies for these chassis is not included. Federal excise taxes are excluded in all years. Table above includes sales of military vehicles.

MONTHLY MOTOR VEHICLE FACTORY SALES FROM U. S. PLANTS


THOUSANDS
900
800
700
600
500
400
300
200
100
TOTAL VEHICLES
PASSENGER CARS
TRUCKS & BUSES
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1952
1953
1954
1955
1956
1957
1958
1959
1960

1960 U. S. Passenger Car, Truck and Bus Production, by Makes, by Months

As reported by the Automobile Manufacturers Association.

PASSENGER CARS

Vehicle Make	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Total—American Motors	40,836	43,136	48,687	46,935	46,388	50,562	42,543	8,691	30,060	45,253	40,102	42,532	485,745
Chrysler	9,886	10,405	7,249	5,813	7,396	8,267	4,801	3,772	7,708	6,860	7,467	7,796	87,420
De Soto	5,662	5,293	1,814	957	1,083	996	572	238	898	944	954	.....	19,411
Dodge	34,319	35,331	41,685	36,706	43,320	46,626	27,285	15,533	27,378	21,475	19,441	13,709	362,808
Imperial	2,894	1,534	1,434	855	817	1,129	.....	508	2,397	2,167	1,809	1,285	16,829
Lancer	.....	.....	.....	.....	.....	.....	.....	9,782	16,362	12,917	7,602	2,195	48,858
Plymouth	36,240	31,612	21,782	18,496	18,722	19,392	10,258	14,971	23,807	19,551	20,602	17,011	252,453
Valiant	17,676	24,417	29,493	26,032	25,911	30,212	14,080	13,657	15,873	10,321	11,991	11,853	231,516
Total—Chrysler Corp.	106,686	108,592	103,457	88,859	97,249	106,622	56,996	58,461	94,423	74,235	69,866	53,849	1,019,295
Comet	.....	2,240	15,294	17,169	21,729	21,148	11,630	29,303	22,008	26,012	18,780	12,717	198,031
Falcon	45,038	40,545	40,549	46,671	45,494	49,839	24,212	46,422	47,279	44,388	39,229	35,762	505,428
Ford	128,893	114,061	89,901	71,705	85,815	81,022	38,956	43,436	74,130	105,808	88,570	82,008	1,004,305
Lincoln	3,430	2,266	1,838	1,316	1,238	1,153	663	1,290	.....	999	2,211	4,279	20,683
Mercury	22,638	16,592	15,801	12,424	12,775	11,592	5,083	6,698	10,642	18,986	15,635	12,921	161,787
Total—Ford Motor Co.	199,999	175,704	163,383	149,285	167,051	164,754	80,544	127,150	154,059	196,193	164,425	147,687	1,890,234
Buick	33,316	31,071	24,731	22,198	26,481	24,883	19,818	25	10,612	28,099	27,093	22,744	271,071
Buick Special	.....	.....	.....	.....	.....	16	114	1,335	4,556	9,795	11,971	8,946	36,733
Cadillac	16,589	16,816	16,725	11,019	14,314	15,121	13,633	5,721	5,824	14,889	14,160	14,130	158,941
Chevrolet	162,357	156,006	182,190	158,350	156,337	152,036	129,556	68,357	44,614	131,127	148,432	124,980	1,614,342
Corvair	33,189	32,178	28,518	19,360	18,437	14,397	17,468	7,118	11,173	25,221	27,716	24,501	259,276
Oldsmobile	41,226	41,192	33,228	32,921	33,200	30,805	29,823	13,664	16,910	31,788	31,568	26,356	362,681
Oldsmobile F-85	.....	.....	.....	.....	.....	20	396	1,025	6,085	10,864	11,472	10,069	39,931
Pontiac	41,473	41,710	44,609	43,419	43,093	42,481	38,483	12,797	19,574	34,127	27,981	28,407	418,154
Tempest	.....	.....	.....	.....	.....	.....	.....	.....	53	5,534	13,565	12,900	32,052
Total—General Motors Corp.	328,150	318,973	330,001	287,267	291,852	279,759	249,291	110,042	119,401	291,444	313,958	273,033	3,193,181
Total—Studebaker-Packard Corp.	13,019	12,893	8,713	10,523	8,710	11,439	5,019	1,170	9,728	10,741	8,779	5,168	105,902
Checker Motors	80	793	886	791	867	618	356	503	614	564	429	479	6,980
Total—Passenger Cars	688,770	660,091	655,127	583,660	612,127	613,754	434,749	306,017	408,305	618,430	597,559	522,748	6,701,337

TRUCKS AND BUSES*

Chevrolet	43,045	47,445	45,710	36,503	34,600	31,888	26,290	9,280	26,382	33,796	31,296	29,365	394,017
G. M. C.	9,178	11,500	11,498	8,693	9,428	10,553	8,822	8,196	4,518	6,600	6,075	5,460	100,521
Diamond T	293	275	238	243	242	250	264	220	164	95	96	93	2,471
Divco	320	340	460	412	420	440	260	320	304	160	108	209	3,573
Dodge and Fargo	7,675	7,960	7,311	6,141	5,932	6,852	4,215	3,424	5,844	5,959	4,580	4,412	70,305
Ford	36,599	32,194	34,943	30,851	32,988	33,210	21,035	25,101	22,239	7,614	29,294	33,152	339,239
F. W. D.	99	104	124	72	51	91	77	55	66	24	61	59	881
International	11,433	12,479	13,055	10,838	11,162	11,810	10,077	6,466	9,536	8,706	5,787	7,062	119,696
Mack	1,279	1,488	847	1,308	1,411	1,574	1,349	1,405	988	1,165	948	676	14,529
Studebaker	630	973	1,219	2,349	1,568	1,960	484	310	765	861	926	316	12,314
White	1,622	1,709	1,612	1,758	1,586	1,480	1,095	977	850	969	1,015	1,275	15,895
Willys	9,759	11,121	12,360	13,154	18,241	13,572	6,781	8,211	6,625	8,708	7,556	5,768	121,856
Other Trucks	305	340	400	395	400	395	360	370	370	320	315	320	4,340
Total—Trucks	122,237	127,928	129,777	112,717	118,029	114,075	81,109	64,335	78,651	74,977	88,057	88,167	1,199,637
Buses	395	330	220	380	400	360	365	305	360	385	280	350	4,155
Total—Trucks and Buses	122,632	128,258	129,997	113,097	118,429	114,435	81,474	64,640	79,011	75,362	88,337	88,517	1,203,792
Total—Passenger Cars	688,770	660,091	655,127	583,660	612,127	613,754	434,749	306,017	408,305	618,430	597,559	522,748	6,701,337
Total—Motor Vehicles	811,402	788,349	785,124	696,757	730,556	728,189	516,223	370,657	487,316	693,792	685,896	611,265	7,905,129

* Monthly figures will not add up to totals shown for the year, due to minor adjustments which were not available at time of going to press.

Calendar Year Car, Truck and Bus Production by Makes

As reported by the Automobile Manufacturers Association

Make of Vehicle	1960 Units	1960 % of Total	1959 Units	1959 % of Total	1958 Units	1958 % of Total	1957 Units	1957 % of Total	1956 Units	1956 % of Total
PASSENGER CARS										
Hudson	.....	.....	.....	.....	.....	.....	1,345	.02	7,182	.12
Nash	.....	.....	.....	.....	.....	.....	3,561	.06	17,841	.31
Rambler	485,745	7.25	401,446	7.17	217,332	5.12	109,178	1.78	79,162	1.36
Total—American Motors Corp.	**485,745**	**7.25**	**401,446**	**7.17**	**217,332**	**5.12**	**114,084**	**1.86**	**104,185**	**1.79**
Chrysler	87,420	1.30	69,411	1.24	49,504	1.17	118,718	1.94	95,360	1.64
De Soto	19,411	.29	41,423	.74	36,700	.86	117,750	1.92	104,395	1.80
Dodge	362,808	5.42	192,798	3.44	114,665	2.70	293,616	4.80	205,820	3.54
Imperial	16,829	.25	20,963	.37	13,673	.32	37,945	.62	12,130	.21
Lancer	48,858	.73	.....	.....	.....	.....	.....	.....	.....	.....
Plymouth	252,454	3.77	393,213	7.03	366,758	8.63	655,006	10.70	452,918	7.80
Valiant	231,510	3.45	19,991	.36	.....	.....	.....	.....	.....	.....
Total—Chrysler Corp.	**1,019,290**	**15.21**	**737,799**	**13.18**	**581,300**	**13.68**	**1,223,035**	**19.98**	**870,623**	**14.99**
Comet	198,031	2.96	.....	.....	.....	.....	.....	.....	.....	.....
Edsel	.....	.....	29,677	.53	26,563	.63	54,607	.89	.....	.....
Falcon	505,428	7.54	100,757	1.80	.....	.....	.....	.....	.....	.....
Ford	1,004,305	14.99	1,427,835	25.50	1,038,560	24.45	1,522,408	24.88	1,373,542	23.65
Lincoln	20,683	.31	30,375	.54	25,871	.61	37,870	.62	48,995	.84
Mercury	161,787	2.41	156,765	2.80	128,428	3.02	274,820	4.49	246,628	4.25
Total—Ford Motor Co.	**1,890,234**	**28.21**	**1,745,409**	**31.17**	**1,219,422**	**28.71**	**1,889,705**	**30.88**	**1,669,165**	**28.74**
Buick	271,071	4.04	232,579	4.15	257,124	6.05	407,271	6.65	535,364	9.22
Buick, Special	36,733	.55	.....	.....	.....	.....	.....	.....	.....	.....
Cadillac	158,941	2.37	138,527	2.47	125,501	2.95	153,236	2.50	140,873	2.43
Chevrolet	1,614,312	24.09	1,349,562	24.10	1,255,943	29.57	1,522,549	24.88	1,621,018	27.92
Corvair	259,276	3.87	79,418	1.42	.....	.....	.....	.....	.....	.....
Oldsmobile	362,681	5.41	366,305	6.54	310,795	7.32	390,091	6.37	432,903	7.46
Olds, F85	39,931	.60	.....	.....	.....	.....	.....	.....	.....	.....
Tempest	32,052	.48	.....	.....	.....	.....	.....	.....	.....	.....
Pontiac	418,154	6.24	388,856	6.94	219,823	5.18	343,298	5.62	332,268	5.72
Total—General Motors Corp.	**3,193,151**	**47.65**	**2,555,247**	**45.63**	**2,169,186**	**51.07**	**2,816,445**	**46.02**	**3,062,426**	**52.75**
Packard	.....	.....	.....	.....	1,745	.04	5,495	.09	13,432	.23
Studebaker	105,902	1.58	153,823	2.75	55,175	1.30	67,394	1.10	82,955	1.43
Total—Studebaker-Packard Corp.	**105,902**	**1.58**	**153,823**	**2.75**	**56,920**	**1.34**	**72,889**	**1.19**	**96,387**	**1.66**
Checker Cab	6,980	.10	5,768	.10	3,267	.08	3,871	.07	3,970	.07
Total—Passenger Cars	**6,701,302**	**100.00**	**5,599,492**	**100.00**	**4,247,427**	**100.00**	**6,120,029**	**100.00**	**5,806,756**	**100.00**
TRUCKS AND BUSES										
Chevrolet	394,017	32.84	326,102	29.08	278,632	32.00	351,740	32.08	353,510	31.91
G. M. C.	100,521	8.38	75,411	6.72	61,768	7.09	69,675	6.35	91,485	8.26
Diamond T	2,471	.21	5,359	.48	5,981	.69	5,845	.53	5,061	.46
Divco	3,573	.30	3,796	.34	2,919	.34	2,871	.26	3,570	.32
Dodge and Fargo	70,305	5.86	71,680	6.39	58,671	6.74	76,616	6.99	91,516	8.26
Ford	339,239	28.28	331,348	29.55	242,890	27.89	337,123	30.75	297,308	26.84
F. W. D.	881	.07	1,067	.10	1,227	.14	1,073	.10	1,645	.15
International	119,696	9.98	143,231	12.77	81,213	9.33	121,775	11.11	137,840	12.44
Mack	14,529	1.21	17,027	1.52	14,308	1.64	17,308	1.58	18,304	1.65
Reo*	.....	.....	.....	.....	.....	.....	1,602	.15	3,789	.34
Studebaker	12,314	1.03	10,779	.96	10,563	1.21	13,642	1.24	15,222	1.37
White	15,895	1.32	19,976	1.78	17,403	2.00	17,173	1.57	17,359	1.57
Willys	121,856	10.16	111,647	9.96	92,099	10.58	75,860	6.92	64,883	5.86
Other Trucks	4,340	.36	3,981	.35	3,129	.35	4,143	.38	6,304	.57
Total—Trucks	**1,199,637**	**100.00**	**1,121,404**	**100.00**	**870,803**	**100.00**	**1,096,446**	**100.00**	**1,107,796**	**100.00**
Buses	4,155	.....	2,692	.....	3,039	.....	3,956	.....	4,206	.....
Total—Trucks and Buses	**1,203,792**	.....	**1,124,096**	.....	**873,842**	.....	**1,100,402**	.....	**1,112,002**	.....
Total—Passenger Cars	**6,701,302**	.....	**5,599,492**	.....	**4,247,427**	.....	**6,120,029**	.....	**5,806,756**	.....
Total—Motor Vehicles	**7,905,094**	.....	**6,723,588**	.....	**5,121,269**	.....	**7,220,431**	.....	**6,918,758**	.....

* Included with White after June 5, 1957.

Passenger Car Factory Sales by Body Types

As reported by the Automobile Manufacturers Association

Body Types	1960 Units	1960 % of Total	1959 Units	1959 % of Total	1958 Units	1958 % of Total	1957 Units	1957 % of Total
4-Door Sedans	2,697,056	40.41	2,065,524	36.95	1,480,550	34.77	1,951,615	31.92
2-Door Sedans	1,092,070	16.36	890,379	15.92	698,799	16.41	893,757	14.62
Business Coupes	1,709	.03	4,656	.08	6,278	.15	13,832	.23
Convertible Coupes	304,539	4.56	254,880	4.56	193,717	4.55	284,682	4.66
2-Door Hardtops	766,249	11.48	749,682	13.41	657,056	15.43	1,140,131	18.65
4-Door Hardtops	750,674	11.25	709,489	12.69	543,397	12.76	932,992	15.26
2-Door Station Wagons*	117,473	1.76	130,803	2.34	107,814	2.53	196,119	3.21
4-Door Station Wagons*	941,809	14.11	781,806	13.98	564,858	13.27	694,178	11.35
Chassis	3,217	.04	4,024	0.07	5,343	0.13	6,038	0.10
Total—Passenger Cars	**6,674,796**	**100.00**	**5,591,243**	**100.00**	**4,257,812**	**100.00**	**6,113,344**	**100.00**

* Does not include station wagons produced on commercial vehicle chassis.

World Motor Vehicle Production, 1958-1959

As reported by the B.D.S.A., U. S. Department of Commerce

Country	1959 Cars	1959 Trucks	1959 Buses	1959 Total	1958 Cars	1958 Trucks	1958 Buses	1958 Total
United States*	5,591,243	1,134,845	2,541	6,728,629	4,257,812	874,278	3,016	5,135,106
Canada*	300,975	67,365	247	368,587	298,349	60,857	571	359,777
Sub-total	5,892,218	1,202,210	2,788	7,097,216	4,556,161	935,135	3,587	5,494,883
Australia	246,712	16,543	.....	263,255	225,308	16,056	.....	241,364
Belgium	145,216	19,532	138	164,886	120,322	15,500	.....	135,822
Czechoslovakia	50,605	14,540	1,517	66,662	43,439	14,048	1,069	58,556
France	1,085,177	195,334	2,648	1,283,159	938,590	185,305	.....	1,123,895
Germany, East	52,684	14,657	.....	67,341	38,422	15,741	.....	54,163
Germany, West	1,552,443	207,928	7,214	1,767,585	1,306,854	181,395	7,007	1,495,256
Italy	470,659	27,905	2,205	500,679	369,009	32,505	2,034	403,548
Japan	78,598	335,510	6,731	420,839	50,643	228,931	7,628	287,202
Spain	53,600	3,200	.....	56,800	31,500	8,900	.....	40,400
Sweden	76,925	13,550	1,900	92,375	68,896	19,000	2,414	90,310
U.S.S.R.	124,000	360,750	9,250	494,000	122,400	389,000	.....	511,400
Union of S. Africa	77,352	21,386	.....	98,738	77,227	19,027	.....	96,254
United Kingdom	1,189,944	370,488	.....	1,560,432	1,051,551	303,010	9,846	1,364,407
All Other Countries	186,663	185,772	16,334	388,859	158,470	162,181	10,592	331,243
Sub-total	5,390,578	1,787,095	47,937	7,225,610	4,602,631	1,590,599	40,590	6,233,820
World Total	11,282,796	2,989,305	50,725	14,322,826	9,158,792	2,525,734	44,177	11,728,703

*—Factory Sales.

Passenger Car Production by Model Years

As reported by the Automobile Manufacturers Association

	1960	1959	1958	1957	1956
Hudson	.....	.....	.....	4,180	10,671
Nash	.....	.....	.....	10,330	22,263
Rambler	458,841	374,240	162,182	84,699	66,573
Total—American Motors	458,841	374,240	162,182	99,209	99,507
Chrysler	72,951	64,244	60,873	115,852	120,730
De Soto	23,832	45,306	48,374	121,909	114,137
Dodge	349,122	151,851	133,952	289,242	245,859
Imperial	17,707	17,262	16,102	35,703	10,682
Plymouth	242,725	425,081	408,039	650,674	516,676
Valiant	187,815	.....	.....	.....	.....
Total—Chrysler Corp.	894,152	703,744	667,340	1,213,380	1,008,084
Comet	116,331	.....	.....	.....	.....
Edsel	2,846	44,891	63,110	.....	.....
Falcon	435,676	.....	.....	.....	.....
Ford	1,003,877	1,462,140	987,945	1,676,449	1,468,734
Lincoln	24,820	26,906	29,684	41,123	50,322
Mercury	155,000	150,000	133,271	286,163	327,943
Total—Ford Motor Co.	1,738,550	1,683,937	1,214,010	2,003,735	1,846,999
Buick	253,999	285,089	241,908	405,086	572,024
Cadillac	142,184	142,272	121,786	146,840	154,631
Chevrolet	1,404,100	1,481,080	1,283,596	1,552,760	1,617,401
Corvair	250,020	.....	.....	.....	.....
Oldsmobile	347,141	382,865	296,375	384,392	485,459
Pontiac	396,716	383,320	217,303	334,041	405,730
Total—General Motors Corp.	2,794,160	2,674,626	2,160,968	2,823,119	3,235,245
Total—Studebaker-Packard Corp.	125,800	131,508	51,502	78,084	105,377
Total—Passenger Cars	6,011,503	5,568,055	4,256,002	6,217,527	6,295,212

Production excludes Checker Cab.

Monthly Factory Sales from U. S. Plants

Automobile Manufacturers Association

PASSENGER CARS

Month	1960	1959	1958	1957
Jan.	676,712	539,451	478,416	628,045
Feb.	656,579	476,977	396,221	570,023
Mar.	659,730	575,012	359,464	585,734
Apr.	588,046	585,789	322,482	541,733
May	607,191	545,001	352,076	537,112
June	605,582	554,878	342,228	496,329
July	421,355	548,524	316,408	484,718
Aug.	324,020	255,831	194,974	521,282
Sept.	386,694	229,410	102,687	318,279
Oct.	627,678	537,159	272,241	291,064
Nov.	600,495	267,829	511,885	583,783
Dec.	520,714	475,382	608,730	555,242
Total	6,674,796	5,591,243	4,257,812	6,113,344

TRUCKS

Jan.	115,268	96,044	79,790	92,117
Feb.	124,210	99,973	71,024	92,567
Mar.	129,441	111,355	73,658	92,653
Apr.	114,590	116,910	73,886	106,275
May	118,023	114,995	75,291	103,862
June	111,420	119,544	70,652	94,821
July	79,444	114,687	65,047	96,985
Aug.	65,948	60,147	55,221	90,152
Sept.	77,038	79,573	46,353	63,131
Oct.	75,034	94,993	69,934	88,879
Nov.	86,957	53,972	93,282	94,574
Dec.	92,940	72,652	100,140	87,327
Total	1,190,313	1,134,858	874,278	1,103,343

BUSES

Jan.	371	169	327	269
Feb.	241	143	308	238
Mar.	340	245	342	341
Apr.	366	253	344	506
May	451	282	241	462
June	364	267	91	389
July	424	233	358	309
Aug.	358	82	265	315
Sept.	211	134	216	243
Oct.	447	268	149	233
Nov.	338	179	167	241
Dec.	251	286	208	287
Total	4,162	2,543	3,016	3,833

Factory Sales of Special Types of Vehicles

As reported by the Automobile Manufacturers Association

Type of Vehicle	1960	1959	1958	1957	1956	1955	1954	1953
Station Wagons[2]	1,104,197	955,453	706,414	918,667	656,696	780,151	364,238	318,178
Motor Coaches[2]	4,162	2,541	3,016	3,833	4,064	4,023	4,118	4,057
School Bus Chassis	27,894	24,857	19,719	23,741	22,714	26,535	22,465	21,284
Trucks with Cab-over-Engine	55,025	64,024	40,734	53,053	44,812	45,815	26,268	24,712
Trucks with Diesel Engines	30,960	35,494	25,172	24,455	25,797	16,876	10,546	10,872
Multi-Stop Delivery Trucks	42,073	33,010	22,362	24,296	26,736	23,853	19,507	19,246
Trucks with 6 wheels, 3 axles	26,698	29,514	19,264	25,684	33,920	26,060	16,364	.....
Ambulances and Funeral Vehicles	.....	3,369	2,452	2,917	2,281	2,661	2,880	3,034

1—Includes those built on truck chassis. 2—Includes integral buses only.

Model Year Factory Installations of Optional Equipment

Shown as Per Cent of Each Car's Production

1960 Models

Make	Transmissions			Engines		Power Operated				Radio	Heater	Air Condition.	Tinted Glass	Looking Different
	Automatic	Standard	Overdrive	V-8	6 cyl.	Brakes	Steering	Windows	Seats					
Rambler	49.4	36.0	14.6	8.9	91.1	13.1	12.7	0.5	N.A.	37.3	93.2	5.2	7.5	7.2
Chrysler	100.0	N.A.	N.A.	100.0	N.A.	80.1	99.2	32.3	23.9	78.2	99.1	16.8	50.1	8.8
DeSoto	99.1	0.1	N.A.	100.0	N.A.	71.0	97.2	7.6	9.3	75.6	99.1	10.9	37.9	5.2
Dodge	78.2	21.8	N.A.	63.6	36.4	13.7	44.6	0.5	0.7	49.0	97.2	3.2	34.0	2.6
Imperial	100.0	N.A.	N.A.	100.0	N.A.	100.0	100.0	92.9	92.7	98.0	99.8	44.7	84.6	17.0
Plymouth	73.7	26.3	N.A.	63.9	36.1	14.7	45.1	0.9	0.8	47.9	97.2	2.9	16.5	3.0
Valiant	54.5	45.5	N.A.	N.A.	100.0	1.1	7.6	N.A.	N.A.	37.5	95.4	N.A.	4.3	N.A.
Comet	62.0	38.0	N.A.	N.A.	100.0	N.A.	N.A.	4.0	N.A.	49.0	93.0	N.A.	24.0	N.A.
Falcon	45.0	55.0	N.A.	N.A.	100.0	N.A.	N.A.	N.A.	N.A.	47.0	88.0	N.A.	N.A.	N.A.
Ford	67.0	29.0	4.0	67.5	32.5	9.5	31.0	1.0	1.0	67.0	91.0	4.5	13.0	2.5
Lincoln	100.0	N.A.	N.A.	100.0	N.A.	100.0	100.0	92.5	93.0	100.0	99.0	49.0	90.0	24.0
Mercury	92.8	8.0	N.A.	100.0	N.A.	48.0	66.0	6.5	7.6	74.0	88.0	15.0	77.0	N.A.
Thunderbird	98.0	1.0	1.0	100.0	N.A.	89.0	97.0	54.0	44.0	98.0	74.0	25.0	53.0	N.A.
Buick	98.9	1.1	N.A.	100.0	N.A.	75.8	85.6	14.2	16.4	88.4	98.9	13.9	76.2	4.7
Cadillac	100.0	N.A.	N.A.	100.0	N.A.	100.0	100.0	85.0	87.0	99.0	99.0	46.0	95.0	N.A.
Chevrolet	67.0	31.0	2.0	56.0	44.0	11.0	27.0	1.0	1.0	35.0	90.0	3.0	23.0	4.0
Corvair	63.0	37.0	N.A.	N.A.	100.0	N.A.	N.A.	N.A.	N.A.	40.0	90.0	N.A.	1.0	N.A.
Oldsmobile	98.8	1.2	N.A.	100.0	N.A.	91.2	94.6	10.1	14.2	89.5	99.0	18.8	66.0	N.A.
Pontiac	97.3	2.7	N.A.	100.0	N.A.	79.5	83.0	6.2	6.0	95.2	98.3	10.2	45.0	4.7
Studebaker	40.2	39.4	20.4	47.8	52.2	3.5	7.2	N.A.	N.A.	17.2	90.6	0.6	4.9	16.4

1959 Models

Rambler	47.5	33.2	19.3	10.8	89.2	16.0	16.5	0.6	N.A.	39.2	93.3	4.9	7.6	4.7
Chrysler	100.0	N.A.	N.A.	100.0	N.A.	82.0	98.7	14.1	23.6	75.1	97.8	12.5	43.3	8.5
DeSoto	99.4	0.6	N.A.	100.0	N.A.	88.2	97.0	7.0	9.8	64.8	98.8	7.7	29.1	5.4
Dodge	93.7	6.3	N.A.	89.7	10.3	27.4	68.9	1.8	2.5	46.4	97.7	4.5	20.3	3.5
Imperial	100.0	N.A.	N.A.	100.0	N.A.	100.0	100.0	91.5	93.0	97.1	99.5	37.5	81.1	19.9
Plymouth	73.1	24.6	2.3	69.4	30.6	13.8	40.1	0.9	0.4	38.8	93.3	2.3	14.7	2.7
Edsel	80.5	19.5	N.A.	77.6	22.4	18.9	30.5	1.5	2.3	75.5	95.0	2.2	8.2	N.A.
Ford	70.0	25.0	5.0	77.0	23.0	10.0	29.0	1.0	1.0	70.0	92.0	4.0	8.0	2.0
Lincoln	100.0	N.A.	N.A.	100.0	N.A.	100.0	100.0	88.1	90.3	99.6	99.9	40.8	82.9	28.2
Mercury	97.4	2.6	N.A.	100.0	N.A.	52.5	69.7	6.4	9.3	83.1	90.4	7.7	47.2	N.A.
Thunderbird	98.0	1.0	1.0	100.0	N.A.	87.0	96.0	56.0	47.0	98.0	98.0	20.0	40.0	N.A.
Buick	98.8	1.2	N.A.	100.0	N.A.	68.7	78.5	12.4	14.5	89.1	98.3	10.1	44.1	5.4
Cadillac	100.0	N.A.	N.A.	100.0	N.A.	100.0	100.0	83.0	81.0	98.8	99.2	39.2	94.5	N.A.
Chevrolet	65.7	32.1	2.2	56.0	44.0	11.4	24.1	1.1	0.8	34.1	90.0	2.3	18.7	....
Oldsmobile	99.1	0.9	N.A.	100.0	N.A.	88.9	91.1	19.7	13.9	81.5	98.3	16.0	49.1	....
Pontiac	97.1	2.9	N.A.	100.0	N.A.	67.8	73.6	4.6	3.5	89.3	98.3	7.9	41.5	3.8
Lark	34.0	37.2	28.8	27.3	72.7	2.3	4.7	N.A.	N.A.	26.4	91.6	0.4	3.0	20.0

N.A.—Not available.

Estimated Factory Installations of Passenger Car Optional Equipment

Based on Production by Model Year

Equipment	1960		1959		1958		1957	
	Units	% of Total Production	Units	% of Total Production	Units	% of Total Production	Units	% of Total Production
Automatic Transmission	4,305,923	71.63	4,183,309	75.13	3,318,241	77.97	4,948,407	79.59
Standard Transmission	1,547,475	25.74	1,159,177	20.82	802,252	18.85	1,091,039	17.55
Overdrive Transmission	158,105	2.63	225,570	4.05	135,509	3.18	178,080	2.86
Power Brake	1,948,092	32.41	1,640,656	29.47	1,253,678	29.46	1,752,320	28.18
Power Steering	2,356,791	39.20	2,390,721	42.94	1,749,991	41.12	2,262,919	36.40
Power Seat	377,806	6.28	330,112	5.93	286,232	6.73	422,774	6.80
Power Windows	375,637	6.25	348,212	6.25	285,862	6.72	399,085	6.42
Radio	3,392,954	56.44	3,273,697	58.79	2,494,006	58.60	4,172,207	67.10
Heater	5,577,009	92.77	5,197,157	93.34	4,012,532	94.28	5,834,353	93.84
White Wall Tires	2,708,561	45.06	2,988,376	53.67	2,524,204	59.31	3,977,784	63.98
Air Conditioning	413,800	6.88	345,639	6.21	198,254	4.66	253,435	4.08
Tinted Glass	1,667,660	27.74	1,278,656	22.96	980,919	23.05	1,666,164	26.80
Windshield Washer	2,535,230	42.17	2,920,537	52.45	1,368,043	32.14	2,266,982	36.46
Back-up Lights	3,538,852	58.87	2,511,589	45.11	1,705,007	40.06	2,769,262	44.54
V-8 Engine	3,408,777	56.70	3,994,888	71.75	3,266,915	76.76	5,161,464	83.01
6-Cylinder Engine	2,602,726	43.30	1,573,167	28.25	1,002,306	23.55	1,056,358	16.99
Air Suspension	N.A.	N.A.	28,040	.50	97,558	2.29	N.A.	N.A.
Limited Slip Differential	208,078	3.46	.....	.....	N.A.	N.A.	N.A.	N.A.

N.A.—Equipment not available.

Motor Coach and School Bus Chassis Factory Sales, Units and Value

As reported by the Automobile Manufacturers Association

	MOTOR COACHES						School Bus Chassis	Total Coach and School Bus Chassis
	City Type	Intercity Type	Special*	Total Coaches	Wholesale Value	Avg. Value per Coach		
1960	3,173	839	150	4,162	N.A.	N.A.	27,894	32,056
1959	1,819	546	176	2,541	$50,881,000	$20,024	24,857	27,398
1958	1,975	888	153	3,016	60,295,000	19,992	19,719	22,735
1957	2,290	1,189	354	3,833	73,993,000	19,304	23,741	27,574
1956	2,832	834	398	4,064	75,836,000	18,660	22,714	26,778
1955	2,615	1,037	371	4,023	74,207,000	18,446	26,535	30,558
1954	2,647	926	545	4,118	71,973,000	17,478	22,465	26,583
1953	2,402	1,056	589	4,057	68,271,000	16,828	21,284	25,341
1952	2,624	909	1,842	5,375	77,339,000	14,389	19,452	24,827

* Includes integral school buses. N.A.—Not available.

Production and Use of Parts for Motor Vehicles: 1958 and 1954

As reported by the Industry Division, Bureau of the Census

PRODUCT	1958			1954		
	Produced	Used in assembly of new vehicles	For replacement, export, and other purposes[1]	Produced	Used in assembly of new vehicles	For replacement, export, and other purposes[1]
Engines, new (with or without cylinder heads, fuel pumps, water pumps, and other standard accessories):						
Gasoline	5,370	5,032	338	6,999	6,543	456
Diesel and semi-Diesel	31	25	6	16	13	3
Carburetors	9,750	5,032	4,718	11,269	6,543	4,726
Piston rings:						
Oil type	135,312	37,295	98,017	223,897	60,233	163,664
Compression	307,897	73,035	234,862	353,014	93,410	259,604
Fuel pump assemblies (excluding kits and rebuilts)	9,468	5,057	4,411	11,960	6,556	5,404
Water pump assemblies (excluding kits and rebuilts)	6,875	5,057	1,818	9,055	6,556	2,499
Ignition coils	8,171	5,032	3,139	10,809	6,543	4,266
Spark plugs	396,064	38,040	358,024	350,727	46,411	304,316
Oil filter elements	99,377	5,032	94,345	N.A.	N.A.	N.A.
Mufflers (exhaust)	30,686	6,946	23,740	25,606	6,802	18,804
Muffler tail pipes	29,059	6,946	22,113	21,615	6,802	14,813
Radiators, complete	5,351	5,057	294	7,856	6,556	1,300
Regulators for battery charging generators:						
Passenger car and light truck type[2]	10,231	4,740	5,491	9,773	N.A.	N.A.
Heavy duty truck and bus type[2]	1,121	409	712	365	N.A.	N.A.
Condensers[2]	39,934	6,830	33,104	27,676	N.A.	N.A.
Breaker point sets:						
Contact arms[2]	49,726	3,690	46,036	39,637	N.A.	N.A.
Contact supports and screws[2]	34,926	3,690	31,236	34,698	N.A.	N.A.
Wheels for passenger cars	28,707	22,101	6,606	N.A.	N.A.	N.A.
Transmission (except auxiliary):						
Passenger car type:						
Conventional transmissions	1,174	1,038	136	2,292	2,239	53
Automatic transmissions (including semiautomatic)	3,383	3,224	159	3,929	3,311	618
Truck and bus type:						
Conventional transmissions	983	916	67	1,136	967	169
Automatic transmissions (including semiautomatic)	49	22	27	66	39	27
Universal joints	13,904	11,569	2,335	13,645	8,727	4,918
Rear axle shafts	9,940	9,304	636	N.A.	N.A.	N.A.
Clutch disc and facing assemblies	8,932	1,954	6,978	8,106	3,206	4,900
Headlights, sealed beam units	53,050	19,724	33,326	31,838	13,112	18,726

N.A.—Not available.

All data are in thousands

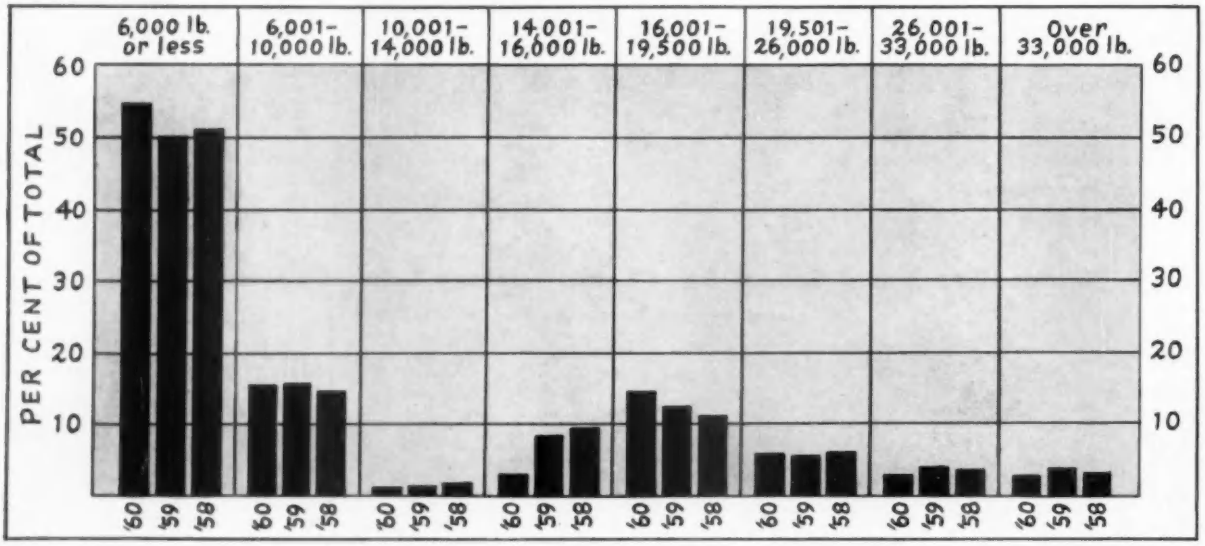
1—The number of motor vehicle parts for the replacement and export markets was derived from the figures on "Total number of units produced" reported by parts producers and motor vehicle manufacturers and the figure on "Total number of units used in the assembly of new vehicles" reported by motor vehicle producers. Only new parts are included; rebuilt engines, carburetors, pistons, etc., are excluded.

2—For these products, total number of units shipped were used instead of total number of units produced.

Annual Motor Truck Factory Sales by G.V.W., 1958-1960

As reported by the Automobile Manufacturers Association

Year	6,000 lb. and less	6,001-10,000 lb.	10,001-14,000 lb.	14,001-16,000 lb.	16,001-19,500 lb.	19,501-26,000 lb.	26,001-33,000 lb.	Over 33,000	Total Sales
				FACTORY SALES					
1960	655,777	182,828	12,343	34,090	169,997	68,062	34,572	32,644	1,190,313
1959	568,999	175,644	14,029	93,114	139,415	62,148	42,857	38,639	1,134,845
1958	446,292	127,157	14,006	81,798	96,526	50,356	29,781	28,362	874,278
				PER CENT OF TOTAL					
1960	55.10%	15.36%	1.04%	2.86%	14.28%	5.72%	2.90%	2.74%	100.00%
1959	50.14%	15.48%	1.24%	8.21%	12.28%	5.47%	3.78%	3.40%	100.00%
1958	51.05%	14.54%	1.60%	9.36%	11.04%	5.76%	3.41%	3.24%	100.00%



Truck Trailer Shipments by Types, by Years

In Units and Their Value

As reported by the Industry Division, Bureau of the Census

All Values are in Thousands of Dollars

General Types	1960		1959		1958		1957		1956	
	Units	Value	Units	Value	Units	Value	Units	Value	Units	Value
Vans	35,009	$200,542	40,020	$231,671	26,198	$159,249	30,923	$174,069	36,682	$198,557
Tank	5,625	52,551	6,919	60,946	5,635	47,640	6,467	54,267	6,530	49,526
Pole, Pipe and Logging	958	3,193	1,445	4,408	927	2,577	1,228	2,945	1,897	5,330
Platforms	9,925	37,034	11,897	43,256	8,868	32,078	10,727	37,248	11,281	37,709
Low-bed Heavy Haulers	2,158	9,771	2,468	10,677	2,301	9,779	2,884	11,781	2,995	11,255
Dump Trailers	1,427	7,681	2,278	10,560	2,548	11,401	2,070	9,853	2,057	8,767
All Other Trailers	3,261	14,219	2,952	15,794	2,030	9,502	3,608	14,708	2,722	8,332
Total—Complete Trailers	58,363	$324,991	67,979	$377,312	48,507	$272,226	57,907	$304,871	64,164	$319,476

Truck Trailer Shipments by Type, 1959-1960

In Units and Their Value

As reported by the Industry Division, Bureau of the Census

Type of Trailer	1960		1959	
	Units	Value	Units	Value
Vans				
Insulated and refrigerated	5,469	$ 44,304,000	5,812	$ 46,416,000
Steel	729	4,836,000	547	4,074,000
Aluminum	4,740	39,468,000	5,265	42,342,000
Furniture	1,847	9,143,000	1,470	6,777,000
Steel	1,591	7,671,000	1,221	5,398,000
Aluminum	256	1,472,000	249	1,379,000
All other closed-top	25,050	132,768,000	29,576	161,998,000
Steel	6,522	30,358,000	7,898	36,927,000
Aluminum	18,528	102,210,000	21,678	125,071,000
Open-top	2,643	14,327,000	3,162	16,480,000
Steel	757	3,834,000	1,279	6,024,000
Aluminum	1,886	10,493,000	1,883	10,456,000
Total—Vans	35,009	$200,542,000	40,020	$231,671,000
Tanks				
Non- and low pressure				
Petroleum & aircraft refuelers				
Carbon and alloy steel	1,502	10,540,000	2,439	15,765,000
Stainless Steel	230	2,693,000	301	3,525,000
Aluminum	1,687	16,296,000	1,835	16,473,000
Total—Petroleum	3,419	$ 29,529,000	4,575	$ 35,763,000
Chemical, food, and sanitary	699	7,984,000	554	6,633,000
Dry materials	1,083	9,858,000	1,425	14,446,000
High pressure (LPG, chemicals, etc.)	424	5,180,000	365	4,104,000
Total—Tanks	5,625	$ 52,551,000	6,919	$ 60,946,000
Pole, and logging				
Single Axle	221	412,000	369	503,000
Tandem Axle	737	2,781,000	1,076	3,905,000
Total—Pole & Logging	958	$ 3,193,000	1,445	$ 4,408,000
Platforms				
Racks, livestock, and stake	451	2,270,000	541	2,624,000
Grain bodies	1,140	4,009,000	1,682	5,795,000
Platforms (flats), all types	8,334	30,755,000	9,674	34,837,000
Total—Platforms	9,925	$ 37,034,000	11,897	$ 43,256,000
Low-bed heavy haulers	2,158	9,771,000	2,468	10,677,000
Dump trailers	1,427	7,681,000	2,278	10,560,000
All other trailers	3,261	14,219,000	2,952	15,794,000
Total—Complete Trailers	58,363	$324,991,000	67,979	$377,312,000
Dump trailer chassis†	763	2,051,000	.....	.....
Trailer Chassis only†	2,834	7,699,000	3,615	9,165,000
Total—Trailers and Chassis	61,958	$334,741,000	71,594	$386,477,000
Detachable van bodies†	.....	.....	3,165	$ 9,541,000

Truck Trailer Shipments

In Units and Their Value

Industry Division, Bureau of the Census

Month	Units	Value
1960		
January	5,932	$ 32,910,000
February	6,177	33,818,000
March	6,811	36,118,000
April	6,238	34,447,000
May	5,414	30,352,000
June	5,414	30,259,000
July	4,105	23,105,000
August	4,142	23,786,000
September	3,923	22,045,000
October	3,811	20,911,000
November	3,367	19,820,000
December	3,029	17,420,000
Total—1960	58,363	$324,991,000
1959		
January	4,607	$ 26,146,000
February	4,873	27,529,000
March	5,572	30,971,000
April	6,110	33,003,000
May	6,148	32,537,000
June	6,491	34,435,000
July	5,824	32,427,000
August	5,670	32,511,000
September	6,168	34,116,000
October	5,300	30,584,000
November	5,381	30,128,000
December	5,835	32,925,000
Total—1959	67,979	377,312,000
1958		
January	3,459	$ 19,804,000
February	3,078	17,403,000
March	3,527	20,673,000
April	3,619	20,527,000
May	3,953	21,658,000
June	3,847	21,029,000
July	3,959	21,896,000
August	4,269	23,338,000
September	4,495	25,179,000
October	5,066	28,461,000
November	4,262	24,113,000
December	4,973	28,145,000
Total—1958	48,507	$272,226,000

Factory Sales of Diesel Trucks by G.V.W.

As reported by the Automobile Manufacturers Association

	U. S. DOMESTIC MARKET						TOTAL FACTORY SALES					
	10,001-14,000 lb.	14,001-16,000 lb.	16,001-19,500 lb.	19,501-26,000 lb.	Over 26,000 lb.	Total	10,001-14,000 lb.	14,001-16,000 lb.	16,001-19,500 lb.	19,501-26,000 lb.	Over 26,000 lb.	Total
1951	.....	.....	5	4,165	9,761	13,931	108	319	250	4,728	11,089	16,494
1952	.....	.....	1,075	822	8,651	10,548	8	195	1,504	1,176	10,282	13,165
1953	.....	.....	146	352	8,375	8,873	.....	282	259	629	9,702	10,872
1954	.....	.....	137	126	8,488	8,751	.....	23	146	406	9,971	10,546
1955	.....	.....	46	225	14,576	14,847	.....	116	57	401	16,302	16,876
1956	.....	4	21	594	20,539	21,158	.....	459	246	1,115	23,977	25,797
1957	.....	.....	.....	344	20,723	21,067	.....	26	345	652	23,432	24,455
1958	.....	.....	4	41	22,838	22,883	.....	4	76	264	24,828	25,172
1960	.....	48	230	118	27,790	28,186	47	72	296	417	30,128	30,960

CANADIAN STATISTICS

Motor Vehicle Production in Canada*

In Units and Their Value

As reported by the Canadian Automobile Chamber of Commerce

Year	PASSENGER CARS			TRUCKS AND BUSES			TOTAL	
	Number of Units	Wholesale Value	Average Wholesale Value	Number of Units	Wholesale Value	Average Wholesale Value	Number of Units	Wholesale Value
1925	135,573	$86,158,773	$635	26,397	$12,234,486	$463	161,970	$98,393,259
1926	166,887	106,000,203	635	37,840	16,629,334	439	204,727	122,629,537
1927	146,421	100,962,211	689	32,633	14,942,017	458	179,054	115,904,228
1928	197,848	127,263,877	643	44,206	21,913,122	496	242,054	149,176,999
1929	203,307	134,023,280	659	59,318	29,474,395	497	262,625	163,497,675
1930	121,337	75,253,581	620	32,035	16,513,225	515	153,372	91,766,806
1931	65,072	42,634,173	655	17,487	10,330,763	591	82,559	52,964,936
1932	50,694	32,490,129	641	10,095	6,070,667	601	60,789	38,560,796
1933	53,849	32,568,268	605	12,003	6,062,195	505	65,852	38,630,463
1934	92,647	57,260,156	618	24,205	12,770,318	528	116,852	70,030,474
1935	135,562	79,209,276	584	37,315	19,803,771	531	172,877	99,013,047
1936	128,369	76,814,258	598	33,790	19,140,946	566	162,159	95,955,204
1937	153,946	93,368,282	610	54,417	30,389,011	558	207,463	123,757,293
1938	123,761	81,661,687	660	42,325	26,497,038	626	166,086	108,158,725
1939	108,369	71,101,304	656	47,057	28,072,712	597	155,426	99,173,916
1940	109,911	83,544,445	760	113,102	91,191,516	806	223,013	174,735,961
1941	96,603	81,167,694	840	173,588	163,414,253	941	270,191	244,581,947
1942	12,236	10,305,013	842	216,057	229,103,128	1,060	228,293	239,408,741
1943	.....	.....	.....	178,064	222,393,092	1,249	178,064	222,393,092
1944	.....	.....	.....	158,038	213,259,582	1,349	158,038	213,259,582
1945	1,868	1,638,118	877	130,777	167,103,012	1,278	132,645	168,741,130
1946	91,871	82,847,330	902	79,657	81,204,338	1,019	171,528	164,051,668
1947	167,257	182,161,183	1,089	90,758	116,357,486	1,282	258,015	298,518,669
1948	166,819	210,799,512	1,264	96,941	137,228,722	1,415	263,760	348,028,234
1949	193,556	277,660,998	1,434	99,028	146,697,354	1,481	292,584	424,358,352
1950	284,076	447,029,182	1,574	106,026	163,942,858	1,546	390,102	610,972,040
1951	282,714	438,613,532	1,551	132,706	212,806,695	1,604	415,420	651,420,227
1952*	283,534	417,654,448	1,473	150,176	253,247,296	1,680	433,710	670,901,744
1953	360,385	539,524,001	1,497	120,574	199,082,949	1,651	480,959	738,606,950
1954	297,191	436,828,440	1,521	69,892	122,291,809	1,750	359,083	559,112,249
1955	375,028	610,683,424	1,628	78,569	143,455,714	1,836	453,597	754,139,138
1956	374,312	646,533,642	1,727	93,552	190,224,699	2,033	467,864	836,748,341
1957	340,016	639,852,313	1,882	71,868	149,668,953	2,083	411,884	789,521,266
1958	298,349	583,921,795	1,957	61,428	135,774,339	2,210	359,777	719,696,134
1959	300,616	613,350,033	2,040	67,441	170,968,483	2,535	368,057	784,318,905
1960	326,946	N.A.	N.A.	69,117	N.A.	N.A.	395,613	N.A.

* Factory Shipments since 1952. Military vehicles are included. N.A.—Not available.

Factory Shipments of Made-in-Canada Vehicles, by Months

As reported by the Dominion Bureau of Statistics

Month	Passenger Cars			Trucks and Buses			Total Motor Vehicles		
	1960	1959	1958	1960	1959	1958	1960	1959	1958
January	32,324	29,617	27,144	6,498	3,993	4,396	38,822	33,610	31,540
February	30,234	31,154	27,276	6,072	5,857	4,812	36,306	37,011	32,088
March	38,529	34,312	30,164	8,360	7,348	5,860	46,889	41,660	36,024
April	34,797	35,936	32,980	6,542	7,893	6,814	41,339	43,829	39,794
May	36,218	32,025	35,137	7,116	7,560	6,381	43,334	39,585	41,518
June	32,909	33,244	30,251	6,025	7,276	5,738	38,934	40,520	35,989
July	18,026	25,053	20,892	4,954	6,098	5,077	22,980	31,151	25,969
August	6,056	7,208	5,767	3,688	4,182	2,769	9,744	11,390	8,536
September	12,393	8,899	6,352	4,889	2,998	3,539	17,282	11,897	9,891
October	23,961	22,765	18,984	4,801	5,864	5,028	28,762	28,629	24,012
November	30,958	17,550	30,330	4,853	4,135	5,467	35,811	21,685	35,797
December	30,091	22,853	33,072	5,319	4,237	5,547	35,410	27,090	38,472
Total	326,496	300,616	298,349	69,117	67,441	61,428	395,569	388,057	359,777

1959 Canadian Motor Vehicle Registrations—by Provinces

As reported by the Canadian Automobile Chamber of Commerce

Province	Passenger Cars	Motor Trucks	Motor Buses	Other Motor Vehicles[1]	Total Motor Vehicles	Motor-cycles	Trailers
Newfoundland	41,000	14,100	165	850	56,115	275	900
Prince Edward Island	17,408	7,056	10	2,909	27,383	119	1,564
Nova Scotia	128,484	38,658	963	8,074	176,179	1,045	9,317
New Brunswick	98,523	27,930	536	1,111	128,090	879	6,868
Quebec	790,614	204,480	5,464	27,219	1,027,777	12,828	55,876
Ontario	1,573,365	385,088	5,198	.....	1,963,651	10,086	130,000
Manitoba	199,650	66,280	192	2,499	268,621	1,536	22,629
Saskatchewan	207,612	117,383	661	267	325,923	767	19,105
Alberta	315,057	135,229	3,367	.....	453,653	2,805	2,311
British Columbia	419,422	121,941	1,307	.....	542,670	4,128	43,682
Yukon and N. W. Territory	4,059	2,496	39	377	6,971	5	989
Total—Canada—1959	3,795,194	1,120,631	17,902	43,306	4,977,033	34,473	293,241
Total—Canada—1958	3,563,879	1,067,637	15,186	42,557	4,689,259	33,867	262,423
Total—Canada—1957	3,367,525	1,025,349	14,103	45,189	4,452,166	34,956	236,145
Total—Canada—1956	3,172,853	989,434	13,129	43,760	4,219,176	35,507	213,748

1—Includes tractors, snowmobiles, road building vehicles and other miscellaneous types.

NEW REGISTRATIONS

All New Registration data on this and the following two pages are based on reports from the R. L. Polk & Co. All rights are reserved and re-use of any of this material is prohibited.

New Passenger Car Registrations by Makes, by Years

Make of Car	1960 Units	1960 % of Total	1959 Units	1959 % of Total	1958 Units	1958 % of Total	1957 Units	1957 % of Total	1956 Units	1956 % of Total
NEW REGISTRATIONS—U. S. CARS										
Hudson	.....	.....	.....	.....	.....	.....	4,596	.07	11,822	.20
Nash	.....	.....	.....	.....	.....	.....	9,474	.16	25,271	.42
Rambler	422,273	6.42	363,372	6.01	186,373	4.00	91,469	1.53	70,867	1.19
Total—American Motors	**422,273**	**6.42**	**363,372**	**6.01**	**186,373**	**4.00**	**105,539**	**1.76**	**107,960**	**1.81**
Chrysler	79,752	1.21	64,424	1.07	58,573	1.26	106,436	1.78	106,853	1.79
De Soto	23,063	.35	42,488	.70	47,894	1.03	103,915	1.74	100,766	1.69
Dodge	356,572	5.42	167,277	2.76	135,538	2.91	257,488	4.30	220,208	3.70
Imperial	16,360	.25	18,498	.31	14,823	.32	33,017	.55	10,460	.18
Plymouth	445,590	6.78	390,104	6.46	391,104	8.40	595,503	9.97	483,756	8.12
Total—Chrysler Corp.	**921,337**	**14.01**	**682,791**	**11.30**	**647,932**	**13.92**	**1,096,359**	**18.34**	**922,043**	**15.48**
Comet	157,515	2.40	.....	.....	.....	.....	.....	.....	.....	.....
Edsel	.....	.....	40,778	.67	38,601	.83	26,681	.45	.....	.....
Ford	1,420,352	21.60	1,471,249	24.35	1,028,893	22.11	1,493,617	24.97	1,375,343	23.12
Lincoln and Continental	20,711	.31	28,815	.48	26,605	.57	37,298	.62	44,162	.72
Mercury	150,724	2.29	157,972	2.62	136,295	2.93	260,573	4.35	274,603	4.61
Total—Ford Motor Co.	**1,749,302**	**26.60**	**1,698,814**	**28.12**	**1,230,394**	**26.44**	**1,818,169**	**30.39**	**1,694,108**	**28.45**
Buick	267,837	4.07	245,909	4.07	263,981	5.67	394,553	6.60	529,371	8.89
Cadillac	149,503	2.27	135,387	2.24	122,651	2.63	141,209	2.36	132,952	2.23
Chevrolet	1,696,925	25.80	1,419,131	23.49	1,234,414	26.53	1,456,288	24.34	1,565,399	26.29
Oldsmobile	355,798	5.41	360,525	5.97	306,566	6.59	371,596	6.21	437,896	7.35
Pontiac	399,646	6.08	382,137	6.33	229,831	4.94	319,719	5.34	358,668	6.02
Total—General Motors Corp.	**2,869,799**	**43.63**	**2,543,089**	**42.10**	**2,157,443**	**46.36**	**2,683,365**	**44.85**	**3,024,286**	**50.78**
Packard	.....	.....	.....	.....	.....	.....	5,189	.08	28,396	.48
Studebaker	106,244	1.62	133,382	2.21	47,798	1.03	62,565	1.05	76,402	1.28
Total—Stude.-Pack. Corp.	**106,244**	**1.62**	**133,382**	**2.21**	**47,798**	**1.03**	**67,754**	**1.13**	**104,798**	**1.76**
All Other U. S. Makes	8,910	.14	5,696	.09	6,057	.13	4,329	.07	3,866	.07
Total—U. S. Cars	**6,077,865**	**92.42**	**5,427,144**	**89.83**	**4,275,997**	**91.88**	**5,775,515**	**96.54**	**5,857,061**	**98.35**
NEW REGISTRATIONS—FOREIGN CARS										
Austin-Healey	16,322	.25	*	*	*	*	*	*	*	*
Fiat	20,773	.32	38,468	.64	21,156	.45	*	*	*	*
Ford (British)	23,602	.36	42,512	.70	33,472	.72	17,062	.28	4,230	.07
Hillman	*	*	28,185	.47	18,970	.41	11,124	.19	3,415	.06
Jaguar	*	*	*	*	*	*	*	*	3,685	.06
Mercedez Benz	14,435	.21	.....	.....	.....	.....	.....	.....	.....	.....
Metropolitan	*	*	*	*	*	*	11,791	.20	7,145	.12
MG	*	*	*	*	16,267	.35	13,496	.23	6,094	.10
Opel	25,533	.39	39,802	.66	15,686	.34	*	*	*	*
Renault	62,772	.95	91,073	1.51	48,148	1.03	22,586	.38	*	*
Simca	17,077	.26	35,190	.58	17,216	.37	*	*	*	*
Triumph	17,720	.27	23,072	.38	16,245	.35	*	*	*	*
Vauxhall	*	*	23,476	.39	17,365	.37	*	*	*	*
Volkswagen	159,995	2.43	120,442	1.99	78,588	1.69	64,242	1.07	50,001	.84
Volvo	13,926	.21	18,533	.31	*	*	*	*	*	*
All Other Foreign	126,630	1.93	153,378	2.54	95,404	2.04	66,526	1.11	23,617	.40
Total—Foreign Cars	**498,875**	**7.58**	**614,131**	**10.17**	**378,517**	**8.12**	**206,827**	**3.46**	**98,187**	**1.65**
Total—U. S. and Foreign Cars	**6,576,650**	**100.00**	**6,041,275**	**100.00**	**4,654,514**	**100.00**	**5,982,342**	**100.00**	**5,955,248**	**100.00**

* Included with All Other Foreign. 1960 and 1959 includes Alaska and Hawaii.

New Truck Registrations by Makes, by Years

Make of Truck	1960 Units	1960 % of Total	1959 Units	1959 % of Total	1958 Units	1958 % of Total	1957 Units	1957 % of Total	1956 Units	1956 % of Total
Brockway	1,103	.12	1,196	.13	959	.13	738	.09	884	.10
Chevrolet	316,962	33.59	306,237	32.50	247,470	34.05	290,960	33.91	302,145	33.78
Diamond	2,421	.26	3,008	.32	2,929	.40	3,472	.40	4,037	.45
Divco	3,095	.33	2,983	.32	2,165	.30	2,558	.30	3,112	.35
Dodge	43,606	4.62	52,278	5.55	37,037	5.10	49,431	5.76	57,651	6.45
Ford	280,501	29.73	292,931	31.09	208,787	28.73	277,301	32.32	263,753	29.49
F.W.D.	515	.05	495	.05	382	.05	433	.05	481	.05
G.M.C.	82,546	8.75	69,509	7.38	55,950	7.70	62,165	7.24	82,266	9.20
International	110,349	11.70	109,053	11.58	89,745	12.35	96,956	11.30	108,014	12.08
Kenworth	1,400	.15	775	.08	858	.12	1,006	.12	1,239	.14
Mack	10,876	1.15	13,473	1.43	11,865	1.63	13,312	1.55	13,190	1.47
Peterbilt	810	.09	633	.07	414	.06	497	.06	609	.07
Reo	†	†	†	†	†	†	2,067	.24	2,974	.33
Studebaker	5,932	.63	5,908	.63	4,142	.57	6,547	.76	8,708	.97
White	14,179	1.50	15,497	1.64	12,142	1.67	12,491	1.45	15,137	1.69
Willys Jeep	11,455	1.21	10,604	1.13	7,744	1.07	6,678	.78	9,131	1.02
Willys Truck	19,930	2.11	20,260	2.15	14,779	2.03	15,327	1.79	14,357	1.61
All Other U. S. Trucks	871	.09	1,054	.11	790	.11	884	.10	1,218	.14
Foreign Trucks	36,934	3.92	36,239	3.84	28,546	3.93	15,262	1.78	5,460	.61
Total—All Trucks	**943,485**	**100.00**	**942,133**	**100.00**	**726,704**	**100.00**	**858,085**	**100.00**	**894,366**	**100.00**

† Included with White. 1960 and 1959 data include Alaska and Hawaii.

New Car and Truck Registrations by Months, 1959-1960

Month	NEW PASSENGER CARS 1960 Units	1960 % of Total	1959 Units	1959 % of Total	Months	NEW TRUCKS 1960 Units	1960 % of Total	1959 Units	1959 % of Total
January	430,116	6.54	420,751	6.96	January	58,234	6.17	61,909	6.57
February	494,178	7.51	425,095	7.04	February	69,588	7.37	64,829	6.88
March	596,669	9.07	497,651	8.24	March	89,627	9.50	77,746	8.25
April	647,287	9.84	574,922	9.52	April	95,009	10.07	91,963	9.76
May	647,055	9.84	583,459	9.66	May	93,460	9.91	86,723	9.20
June	595,864	9.06	585,932	9.70	June	85,535	9.07	87,082	9.24
July	546,535	8.31	566,453	9.38	July	79,670	8.44	89,110	9.46
August	525,400	7.99	533,636	8.83	August	81,418	8.63	88,387	9.38
September	458,765	6.98	458,434	7.59	September	76,072	8.06	79,047	8.39
October	547,461	8.32	534,847	8.85	October	74,158	7.86	78,920	8.38
November	543,042	8.26	429,349	7.11	November	67,464	7.15	74,325	7.89
December	544,278	8.28	430,830	7.12	December	73,250	7.77	62,092	6.60
Total	6,576,650	100.00	6,041,275	100.00	Total	943,485	100.00	942,133	100.00

New Registrations of Cars and Trucks, by Regions, 1959-1960

Zone	Region	NEW PASSENGER CARS 1960 Units	1960 % of Total	1959 Units	1959 % of Total		NEW TRUCKS 1960 Units	1960 % of Total	1959 Units	1959 % of Total
1	New England	374,895	5.70	320,166	5.30	1	36,284	3.85	34,680	3.68
2	Middle Atlantic	1,274,275	19.38	1,066,423	17.65	2	116,263	12.32	109,191	11.59
3	South Atlantic	867,565	13.19	792,769	13.12	3	130,358	13.82	131,851	13.99
4	East North Central	1,637,343	24.90	1,517,051	25.11	4	157,798	16.73	155,989	16.56
5	East South Central	299,966	4.56	273,981	4.54	5	64,102	6.79	65,089	6.91
6	West North Central	560,648	8.52	538,002	8.91	6	99,943	10.59	103,612	11.00
7	West South Central	535,104	8.14	538,337	8.91	7	131,250	13.91	139,632	14.82
8	Mountain	232,089	3.53	226,414	3.75	8	67,351	7.14	69,020	7.33
9	Pacific	794,765	12.08	768,132	12.71	9	140,136	14.85	133,069	14.12
	Total—United States	6,576,650	100.00	6,041,275	100.00	Total	943,485	100.00	942,133	100.00

States comprising the various regions are: Zone 1: Conn., Mass., Me., N. H., R. I., Vt.—Zone 2: N. J., N. Y., Pa.—Zone 3: Del., D. of C., Fla., Ga., Md., N. C., S. C., Va., W. Va.—Zone 4: Ill., Ind., Mich., Ohio, Wisc.—Zone 5: Ala., Ky., Miss., Tenn.—Zone 6: Iowa, Kan., Minn., Mo., Neb., N. D.—Zone 7: Ark., La., Okla., Tex.—Zone 8: Ariz. Colo., Ida., Mont., Nev., N. M., Utah, Wyo.—Zone 9: Alas., Cal., Hawaii, Ore., Wash.

New Motor Vehicle Registrations by States, 1958-1960

State	NEW PASSENGER CARS 1960	1959	1958	NEW TRUCKS 1960	1959	1958	TOTAL NEW VEHICLES 1960	1959	1958
Alabama	89,151	82,114	58,377	18,814	19,799	14,293	107,965	101,913	72,670
Alaska	4,988	4,528	3,513	1,117	1,322	793	6,105	5,850	4,306
Arizona	43,594	39,402	26,871	12,310	11,655	8,427	55,904	51,057	35,298
Arkansas	42,525	41,428	30,700	15,616	15,820	11,421	58,141	57,248	42,121
California	631,555	604,004	450,588	104,244	100,677	72,651	735,799	704,681	523,239
Colorado	63,472	60,036	48,671	15,126	15,656	11,922	78,598	75,692	60,593
Connecticut	101,824	87,680	69,408	7,299	6,951	6,564	109,123	94,631	75,972
Delaware	20,747	17,995	15,996	2,544	2,696	2,266	23,291	20,691	18,262
District of Columbia	29,310	25,808	21,232	2,725	2,695	2,235	32,035	28,503	23,467
Florida	222,283	217,014	161,946	28,238	30,914	23,434	250,521	247,928	185,380
Georgia	117,570	105,747	84,118	24,663	21,058	17,585	142,233	126,805	101,703
Hawaii	18,383	14,775	.....	2,509	1,952	.....	20,892	16,727	.....
Idaho	21,342	21,325	17,260	7,977	7,581	6,149	29,319	28,906	23,409
Illinois	442,940	412,847	318,914	37,727	40,015	30,916	480,667	452,862	349,830
Indiana	181,074	180,989	126,665	23,986	25,629	17,979	205,060	206,618	144,644
Iowa	95,437	93,128	79,611	16,552	17,521	14,986	111,989	110,649	94,597
Kansas	80,942	79,390	69,286	17,309	17,446	14,334	98,251	96,836	83,620
Kentucky	72,549	65,273	49,693	13,755	13,997	11,337	86,304	79,270	61,030
Louisiana	92,024	91,049	71,422	18,382	20,250	17,000	110,406	111,299	88,422
Maine	32,235	27,255	23,968	6,123	5,394	4,580	38,358	32,649	28,548
Maryland	120,395	102,475	84,094	11,661	11,565	8,679	132,056	114,040	92,773
Massachusetts	170,912	146,453	115,403	13,400	13,114	9,705	184,312	159,567	125,108
Michigan	445,740	402,444	265,317	40,250	35,770	23,187	485,990	438,214	288,504
Minnesota	131,675	123,714	97,175	16,560	17,325	14,381	148,235	141,039	111,556
Mississippi	41,982	38,944	32,105	13,705	13,465	11,759	55,687	52,409	43,864
Missouri	154,910	144,713	117,493	25,503	26,396	20,340	180,413	171,109	137,833
Montana	22,998	24,396	19,172	7,291	8,480	6,379	30,289	32,876	25,551
Nebraska	54,544	53,044	41,657	12,856	12,974	9,955	67,400	66,018	51,612
Nevada	10,704	11,550	9,706	3,044	3,288	2,522	13,748	14,838	12,228
New Hampshire	25,926	21,118	14,969	3,959	3,146	2,817	29,885	24,264	17,786
New Jersey	272,504	223,349	186,706	24,115	21,871	18,023	296,619	245,220	204,729
New Mexico	28,044	29,356	21,729	9,377	10,231	8,418	37,421	39,587	30,147
New York	611,830	499,590	424,740	51,730	47,340	37,549	663,560	546,930	462,289
North Carolina	119,674	111,941	75,215	23,396	24,208	17,898	143,070	136,149	93,113
North Dakota	21,144	21,480	18,710	4,997	5,460	4,817	26,141	26,940	23,527
Ohio	413,777	383,035	272,981	37,946	36,924	27,690	451,723	419,959	300,671
Oklahoma	73,624	73,995	58,937	22,410	22,125	16,749	96,034	96,120	75,686
Oregon	68,594	68,366	53,848	16,604	14,010	10,872	85,198	82,376	64,720
Pennsylvania	389,941	343,484	278,546	40,418	39,980	33,408	430,359	383,464	311,954
Rhode Island	28,520	24,283	19,476	2,487	3,275	2,964	31,007	27,558	22,440
South Carolina	57,411	52,570	36,137	10,610	10,701	7,634	68,021	63,271	43,771
South Dakota	21,996	22,533	20,379	6,166	6,490	5,559	28,162	29,023	25,938
Tennessee	96,284	87,650	63,499	17,828	17,828	13,455	114,112	105,478	76,954
Texas	326,931	331,865	267,547	74,842	81,437	64,942	401,773	413,302	332,489
Utah	27,629	26,167	20,182	6,939	6,755	5,038	34,568	32,922	25,220
Vermont	15,478	13,377	11,606	3,016	2,806	2,524	18,494	16,177	14,130
Virginia	133,688	118,388	89,709	18,266	19,609	13,805	151,954	137,997	103,514
Washington	71,245	76,459	58,103	15,662	15,108	11,275	86,907	91,567	69,378
West Virginia	46,487	40,831	32,519	8,255	8,405	7,490	54,742	49,236	40,009
Wisconsin	153,812	137,736	108,184	17,889	17,651	13,918	171,701	155,387	122,102
Wyoming	14,306	14,182	10,431	5,287	5,374	4,080	19,593	19,556	14,511
Total	6,576,650	6,041,275	4,654,514	943,485	942,133	726,704	7,520,135	6,983,408	5,381,218

New Truck Registrations by Makes and G.V.W., 1958-1960

Make	Year	6,000 lb. or Less	6,001-10,000 lb.	10,001-14,000 lb.	14,001-16,000 lb.	16,001-19,500 lb.	19,501-26,000 lb.	26,001-33,000 lb.	33,001 lb. and Over	Total
BROCKWAY	1960	.....	.....	.....	.....	.....	30	215	858	1,103
	1959	.....	.....	.....	.....	.....	23	246	927	1,196
	1958	.....	.....	.....	.....	.....	49	305	605	959
CHEVROLET	1960	204,623	46,197	5,148	8,152	46,340	5,800	.....	702	316,962
	1959	192,622	44,295	8,337	52,518	8,065	.....	.....	.....	305,837
	1958	148,407	40,344	8,737	42,941	7,041	.....	.....	.....	247,470
DIAMOND T.	1960	.....	.....	.....	.....	46	516	1,605	254	2,421
	1959	.....	.....	.....	.....	65	588	2,126	228	3,007
	1958	.....	.....	.....	.....	137	848	1,644	300	2,929
DIVCO	1960	32	2,072	817	.....	174	.....	.....	.....	3,095
	1959	34	1,848	982	.....	116	.....	.....	.....	2,980
	1958	116	1,382	610	.....	57	.....	.....	.....	2,165
DODGE	1960	23,644	7,699	1	1,932	5,926	3,294	833	277	43,606
	1959	26,475	11,705	3	3,008	6,595	2,937	1,026	358	52,107
	1958	19,147	6,928	17	2,501	5,007	2,346	897	194	37,037
FORD	1960	163,628	45,267	.....	10,070	43,379	12,446	3,263	2,448	280,501
	1959	164,865	45,689	.....	10,996	50,589	14,790	2,440	2,969	292,338
	1958	118,488	31,509	.....	7,875	36,075	11,395	1,562	1,883	208,787
F.W.D.	1960	.....	.....	.....	.....	8	45	141	321	515
	1959	.....	.....	.....	.....	10	31	173	280	494
	1958	.....	.....	.....	2	10	50	201	119	382
G.M.C.	1960	32,860	11,859	1,042	5,308	13,763	10,875	4,820	2,019	82,546
	1959	24,534	9,169	42	6,868	12,833	9,326	5,042	1,617	69,431
	1958	21,205	8,351	126	6,588	8,752	6,805	3,038	1,085	55,950
INTERNATIONAL	1960	31,310	14,258	3,161	4,779	22,465	16,724	10,524	7,128	110,349
	1959	33,217	12,542	3,033	3,992	21,149	16,577	11,220	7,098	108,828
	1958	26,838	12,254	3,598	4,193	17,163	11,633	8,668	5,398	89,745
KENWORTH	1960	.....	.....	.....	.....	.....	.....	.....	1,400	1,400
	1959	.....	.....	.....	.....	.....	.....	.....	768	768
	1958	.....	.....	.....	.....	.....	.....	.....	858	858
MACK	1960	.....	.....	.....	.....	.....	601	3,812	6,463	10,876
	1959	.....	.....	.....	.....	.....	783	4,302	8,387	13,472
	1958	.....	.....	.....	.....	.....	1,058	3,545	7,262	11,865
PETERBILT	1960	.....	.....	.....	.....	.....	.....	22	788	810
	1959	.....	.....	.....	.....	.....	.....	19	604	623
	1958	.....	.....	.....	.....	.....	.....	78	336	414
STUDEBAKER	1960	5,076	460	1	120	275	.....	.....	.....	5,932
	1959	4,590	558	38	12	708	.....	.....	.....	5,906
	1958	2,825	617	161	11	528	.....	.....	.....	4,142
WHITE	1960	.....	169	.....	.....	.....	1,234	7,688	5,088	14,179
	1959	.....	.....	.....	.....	.....	1,469	9,653	4,346	15,468
	1958	.....	.....	.....	.....	.....	926	8,630	2,586	12,142
WILLYS JEEP	1960	11,455	.....	.....	.....	.....	.....	.....	.....	11,455
	1959	10,576	.....	.....	.....	.....	.....	.....	.....	10,576
	1958	7,744	.....	.....	.....	.....	.....	.....	.....	7,744
WILLYS TRUCK	1960	11,079	8,851	.....	.....	.....	.....	.....	.....	19,930
	1959	11,920	8,130	.....	.....	.....	.....	.....	.....	20,050
	1958	12,441	2,338	.....	.....	.....	.....	.....	.....	14,779
MISC. DOMESTIC	1960	.....	.....	.....	.....	40	63	97	671	871
	1959	.....	.....	.....	.....	34	63	162	788	1,047
	1958	.....	.....	.....	.....	33	107	172	478	790
FOREIGN	1960	36,934	.....	.....	.....	.....	.....	.....	.....	36,934
	1959	36,053	.....	.....	.....	.....	.....	.....	.....	36,053
	1958	28,546	.....	.....	.....	.....	.....	.....	.....	28,546
TOTAL	**1960**	**520,641**	**136,832**	**10,170**	**30,361**	**132,416**	**51,628**	**33,020**	**28,417**	**943,485**
	1959	**504,886**	**133,936**	**12,435**	**77,394**	**100,164**	**46,587**	**36,409**	**28,370**	**940,181**
	1958	**385,757**	**103,723**	**13,249**	**64,111**	**74,803**	**35,217**	**28,740**	**21,104**	**726,704**
% OF TOTAL	**1960**	**55.19**	**14.50**	**1.08**	**3.22**	**14.03**	**5.47**	**3.50**	**3.01**	**100.00**
	1959	**53.70**	**14.25**	**1.32**	**8.23**	**10.65**	**4.96**	**3.87**	**3.02**	**100.00**
	1958	**53.09**	**14.28**	**1.82**	**8.82**	**10.29**	**4.85**	**3.95**	**2.90**	**100.00**

Note: 1960 data includes Alaska and Hawaii; 1959 includes Alaska only.

RETAIL OUTLETS

Distribution Outlets and Their Per Cent of U. S. Sales Volume Wholesale and Retail—by States—1958 Census

As reported by the Bureau of the Census

Geographic Division and State	AUTOMOTIVE WHOLESALERS		FRANCHISED CAR DEALERS		AUTOMOTIVE REPAIR SHOPS		GASOLINE SERVICE STATIONS	
	Outlets	% of U. S. Sales	Outlets	% of U. S. Sales	Outlets	% of U. S. Sales	Outlets	% of U. S. Sales
NEW ENGLAND								
Maine	67	.4825	318	.5607	810	.7253	1,140	.5411
New Hampshire	54	.3074	233	.3624	445	.4529	792	.3414
Vermont	32	.1933	157	.2553	362	.2880	570	.2120
Massachusetts	431	2.7195	1,089	2.7940	2,316	2.5788	4,718	2.3575
Rhode Island	86	.3563	156	.4161	413	.3877	985	.3935
Connecticut	214	1.0472	539	1.4920	1,170	1.6385	2,524	1.3512
Total	884	5.1062	2,492	5.8805	5,516	6.0712	10,729	5.1717
MIDDLE ATLANTIC								
New York	1,302	9.0705	2,608	7.8971	6,711	7.5173	12,484	6.6432
New Jersey	492	2.9267	1,139	3.2936	3,098	3.6163	6,257	3.1270
Pennsylvania	1,046	6.5011	2,685	6.2718	7,681	7.0202	11,303	5.1473
Total	2,840	18.4983	6,432	17.4625	17,490	18.1538	30,044	14.9175
EAST NORTH CENTRAL								
Ohio	987	5.9987	2,005	5.4993	5,290	4.8280	9,957	5.6959
Indiana	437	2.3784	1,185	2.6768	2,799	2.2517	6,082	2.9649
Illinois	951	5.4974	2,065	6.0097	4,623	4.8990	9,915	5.8434
Michigan	714	4.2345	1,602	5.1284	3,507	3.5453	9,455	4.9487
Wisconsin	315	1.7655	1,259	2.3964	2,112	1.8046	5,065	2.1667
Total	3,404	19.8745	8,116	21.7106	18,331	17.3286	40,474	21.6196
WEST NORTH CENTRAL								
Minnesota	306	2.1232	1,071	2.0974	2,091	1.6844	4,237	2.0042
Iowa	349	1.5810	1,093	1.8535	2,122	1.6347	4,447	1.9104
Missouri	521	2.9822	1,051	2.4981	3,185	2.8894	6,195	2.7500
North Dakota	89	.3550	296	.5007	430	.2763	876	.4013
South Dakota	77	.3760	327	.4575	601	.4009	1,163	.4677
Nebraska	185	1.0224	550	.9775	1,263	.9469	2,174	1.0282
Kansas	275	1.2563	807	1.5145	1,846	1.3952	3,705	1.5656
Total	1,802	9.6961	5,195	9.8992	11,538	9.2278	22,797	10.1274
SOUTH ATLANTIC								
Delaware	37	.1640	91	.3030	203	.2048	566	.2897
Maryland	203	1.2692	447	1.5588	1,376	1.4307	2,707	1.5951
District of Columbia	57	.3143	78	.5561	247	.5367	443	.4427
Virginia	285	1.6038	826	1.9667	1,750	1.9293	4,640	2.1320
West Virginia	202	.8913	485	.8614	883	.7189	2,401	.8701
North Carolina	478	2.7398	906	1.9665	2,821	2.4358	6,110	2.1766
South Carolina	188	.7006	420	.8502	1,322	1.0985	2,947	1.0775
Georgia	410	2.0879	740	1.7972	2,238	2.0825	5,023	2.0303
Florida	522	2.6368	760	3.0051	2,675	2.7289	6,105	2.9972
Total	2,382	12.4077	4,753	12.8650	13,515	13.1861	30,943	13.6112
EAST SOUTH CENTRAL								
Kentucky	273	1.0900	668	1.3406	1,703	1.3897	3,266	1.3708
Tennessee	409	2.2620	624	1.6298	1,882	1.5389	4,210	1.8351
Alabama	313	1.3769	506	1.3030	1,623	1.4449	3,462	1.3828
Mississippi	214	1.0426	487	.8747	884	.6651	2,285	.9036
Total	1,209	5.7415	2,285	5.1481	6,092	5.0386	13,223	5.4923
WEST SOUTH CENTRAL								
Arkansas	211	.8041	444	.8368	1,302	.8322	2,589	.8602
Louisiana	295	1.4809	487	1.5313	1,613	1.4786	3,368	1.5461
Oklahoma	323	1.5538	690	1.3534	2,157	1.5215	3,863	1.4780
Texas	1,165	6.0492	2,247	6.1701	7,541	6.3351	14,902	6.1775
Total	1,994	9.9240	3,868	9.8916	12,613	10.1674	24,722	10.0618
MOUNTAIN								
Montana	93	.4867	318	.5554	482	.4366	1,048	.4867
Idaho	95	.3379	283	.5185	457	.4745	1,029	.4645
Wyoming	48	.2205	154	.2651	246	.2027	658	.3242
Colorado	257	1.4605	435	1.2158	1,284	1.3376	2,387	1.1599
New Mexico	123	.3876	219	.5605	661	.6616	1,424	.6767
Arizona	168	.9513	228	.7442	905	1.0480	1,705	.9207
Utah	119	.7092	211	.5282	552	.5810	1,243	.5943
Nevada	28	.1943	79	.1919	182	.2432	493	.3284
Total	931	4.7480	1,927	4.5796	4,769	4.9852	9,987	4.9554
PACIFIC								
Washington	380	1.6522	658	1.4217	2,002	1.9648	3,806	1.6941
Oregon	301	1.5904	481	1.1920	1,284	1.2144	2,579	1.1779
California	1,734	10.7611	2,348	9.9492	10,574	12.6621	16,998	11.1711
Total	2,415	14.0037	3,487	12.5629	13,860	15.8413	23,383	14.0431
CONTINENTAL U. S. TOTAL	17,861	100.0000	38,555	100.0000	103,724	100.0000	206,302	100.0000
Alaska	15	$ 5.0 mil.	45	$20.8 mil.	82	$ 2.6 mil.	102	$11.8 mil.
Hawaii	48	$20.8 mil.	46	$53.8 mil.	292	$10.3 mil.	351	$38.0 mil.
UNITED STATES TOTAL	17,924	.....	38,646	.....	104,098	.....	206,755	.....

AUTOMOTIVE WHOLESALERS comprise establishments primarily engaged in the wholesale distribution of automotive parts and accessories, equipment for filling stations and garages, and rubber tires and tubes.

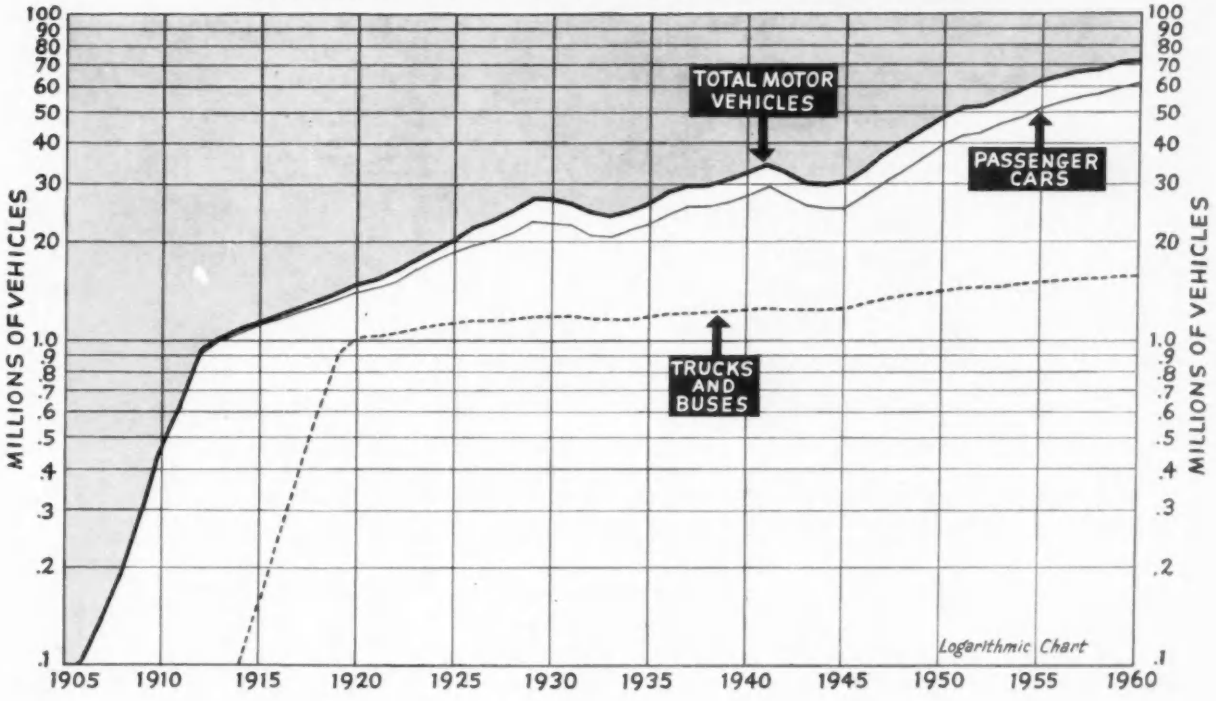
FRANCHISED CAR DEALERS comprise establishments primarily engaged in selling new and used cars. They frequently operate repair shops and may carry stocks of replacement parts, tires, batteries and accessories.

GASOLINE SERVICE STATIONS comprise establishments primarily engaged in selling gasoline and other petroleum products.

AUTOMOTIVE REPAIR SHOPS comprise establishments primarily engaged in the general repair of automobiles and also in specialized repairs such as top, body repair; battery and ignition repair and service; radiator repair; brake, wheel, axle, and spring repair, etc.

TOTAL REGISTRATIONS

GROWTH OF U. S. MOTOR VEHICLE REGISTRATIONS



U. S. Motor Vehicle Registrations, 1925-1960

These data do not include publicly owned vehicles of which there was approximately 930,000 in 1959.

Year	PASSENGER CARS			TRUCKS AND BUSES			TOTAL VEHICLES	
	Units	Per Cent of Total	Per Cent Increase	Units	Per Cent of Total	Per Cent Increase	Units	Per Cent Increase
1925	17,439,701	87.5	13	2,501,023	12.5	15	19,940,724	13
1926	19,220,885	87.3	10	2,831,674	12.7	13	22,052,559	11
1927	20,142,120	87.2	5	2,997,439	12.8	6	23,139,559	5
1928	21,308,159	87.1	6	3,203,524	12.9	7	24,511,683	6
1929	23,060,421	87.1	8	3,442,087	12.9	7	26,502,508	8
1930	22,972,745	86.7	−0.4	3,559,254	13.3	3.4	26,531,999	0.1
1931	22,420,629	86.3	−2.4	3,573,267	13.7	0.4	25,993,896	−2.0
1932	20,994,092	86.2	−6.4	3,347,730	13.8	−6.3	24,341,822	−6.4
1933	20,557,493	86.2	−2.1	3,292,439	13.8	−1.7	23,849,932	−2.0
1934	21,535,199	86.6	4.7	3,346,268	13.4	1.6	24,881,467	4.3
1935	22,513,715	86.1	4.5	3,644,997	13.9	8.9	26,158,712	5.1
1936	24,044,432	85.6	6.8	4,047,277	14.4	11.0	28,091,709	7.4
1937	25,356,786	85.5	5.5	4,292,484	14.5	6.1	29,649,270	5.5
1938	25,264,589	85.5	−0.4	4,283,395	14.5	−0.2	29,547,984	−0.3
1939	26,147,798	85.3	3.5	4,496,770	14.7	5.0	30,644,568	3.7
1940	27,240,475	85.3	4.2	4,683,376	14.7	4.1	31,923,851	4.2
1941	29,240,417	85.6	7.3	4,911,990	14.4	4.9	34,152,407	7.0
1942	27,683,529	85.4	−5.3	4,741,298	14.6	−3.5	32,424,827	−5.1
1943	25,841,215	84.7	−6.7	4,657,882	15.3	−1.8	30,499,097	−6.0
1944	25,298,639	84.6	−2.1	4,611,966	15.4	−1.0	29,910,605	−1.9
1945	25,398,824	83.5	0.4	5,025,233	16.5	9.0	30,424,057	1.7
1946	27,834,543	83.6	9.6	5,858,813	17.4	16.6	33,693,356	10.7
1947	30,482,007	81.8	9.6	6,754,256	18.2	15.4	37,236,263	10.6
1948	33,011,780	81.5	8.3	7,490,343	18.5	11.0	40,502,123	8.9
1949	36,235,930	82.3	9.8	7,770,852	17.7	3.7	44,006,782	8.6
1950	39,952,969	82.8	10.2	8,318,721	17.2	7.0	48,271,690	9.7
1951	42,123,278	82.7	5.4	8,834,741	17.3	6.2	50,958,019	5.6
1952	43,323,355	82.6	2.8	9,131,021	17.4	3.4	52,454,376	2.9
1953	46,251,460	83.2	6.8	9,343,274	16.8	2.3	55,594,734	6.0
1954	48,174,447	83.0	4.2	9,875,683	17.0	5.7	58,050,130	4.4
1955	51,923,136	83.7	7.8	10,116,373	16.3	2.4	62,039,509	6.9
1956	54,066,619	83.8	4.1	10,428,106	16.2	3.1	64,494,725	4.0
1957	55,887,576	83.9	3.4	10,755,204	16.1	3.1	66,642,780	3.3
1958	57,072,533	84.0	2.1	10,790,409	16.0	0.3	67,862,942	1.8
1959	59,493,555	84.1	4.2	11,244,420	15.9	4.2	70,737,975	4.2
1960	61,552,264	84.3	3.5	11,486,434	15.7	2.2	73,038,698	3.2

— Denotes decrease. Sources: Public Roads Administration through 1930; 1931 to 1960 Automotive Industries count.

World Motor Vehicle Registrations, by Continents

As of January 1 of each Year

As reported by the B.D.S.A., U. S. Department of Commerce

Continent	1960 Total Vehicles	1960 Passenger Cars	1960 Trucks	1960 Buses	1959 Total Vehicles	1959 Passenger Cars	1959 Trucks	1959 Buses
Europe	29,301,326	20,385,422	8,619,131	296,773	27,102,696	18,496,069	8,321,685	284,942
Asia	3,616,632	1,506,714	1,942,655	167,263	3,518,424	1,448,122	1,858,725	211,577
Africa	2,408,982	1,664,959	709,884	34,139	2,315,401	1,592,122	695,137	28,142
North America	77,463,464	63,932,591	13,209,001	321,872	74,132,543	61,172,943	12,637,495	322,105
South America	2,745,606	1,408,634	1,233,568	103,404	2,429,860	1,324,572	1,010,611	94,677
Oceania	3,285,117	2,370,450	911,702	2,965	3,104,854	2,230,433	871,414	3,007
U.S. Territories & Dependencies	450,863	364,749	84,397	1,717	419,749	339,945	78,173	1,631
World Total	119,271,990	91,633,519	26,710,338	928,133	113,023,527	86,604,206	25,473,240	946,081
United States	71,266,714	59,331,041	11,670,559	265,114	68,299,408	56,870,684	11,158,561	270,163
World Total—Less U. S.	48,006,276	32,302,478	15,039,779	663,019	44,724,119	29,733,522	14,314,679	675,918

1960 U. S. Motor Vehicle Registrations, by States

As of the End of the Registration Year

These data do not include publicly-owned vehicles, with the exception of school buses. Total publicly-owned vehicles in 1959 were approximately 930,000.

State	Passenger Cars[1]	Trucks	Buses[5]	Total Motor Vehicles	Taxicabs[4]	Motor-cycles	Trailers—Semi-Trailers Tourist[6]	Trailers—Semi-Trailers Commercial	Trailers—Semi-Trailers Total
Alabama	994,022	217,389	1,525	1,212,936	2,086	10,387	.....	.....	21,800
Alaska	68,787	11,905	(2)	80,692	.....	908	.....	.....	.....
Arizona	484,557	126,375	1,387	612,319	221	8,392	58,045	14,146	72,119
Arkansas	498,736	199,001	4,075	701,812	588	4,770	.....	.....	50,480
California	6,527,030	956,538	.....	7,483,568	.....	73,391	.....	.....	718,000
Colorado	714,400	184,290	(3)	898,690	(3)	10,831	21,400	51,809	73,209
Connecticut	984,996	111,692	4,007	1,100,695	639	6,283	32,826	9,999	42,825
Delaware	142,297	47,851	(2)	190,148	(3)	885	.....	.....	12,504
District of Columbia	180,946	16,967	2,704	200,617	9,842	657	.....	.....	1,600
Florida	2,045,582	297,957	7,143	2,350,682	38,340	29,317	216,348	60,307	276,655
Georgia	1,215,079	272,501	7,282	1,494,862	(3)	8,310	51,836	17,362	69,198
Hawaii	191,000	29,000	650	220,650	.....	3,200	6,000	500	6,500
Idaho	255,207	128,391	500	384,098	.....	3,600	37,819	23,978	61,797
Illinois	3,300,000	462,000	(2)	3,762,000	9,000	28,000	.....	.....	149,000
Indiana	1,678,211	343,763	7,778	2,029,752	.....	18,418	6,785	160,792	167,577
Iowa	1,068,261	238,309	.....	1,306,570	(3)	10,941	.....	.....	133,959
Kansas	873,075	293,942	.....	1,167,017	(3)	10,535	.....	.....	52,408
Kentucky	950,000	233,000	1,290	1,184,290	.....	7,000	8,500	14,800	23,300
Louisiana	936,900	219,694	4,667	1,161,261	2,556	7,953	47,467	24,407	71,874
Maine	302,374	79,609	460	382,443	718	1,862	.....	.....	42,614
Maryland	1,001,949	137,745	7,094	1,146,788	2,608	5,931	.....	.....	40,358
Massachusetts	1,606,591	181,317	6,787	1,794,695	(3)	10,034	.....	.....	109,721
Michigan	2,875,758	391,002	.....	3,266,761	.....	30,614	25,492	322,038	347,530
Minnesota	1,301,929	266,074	4,966	1,572,969	(3)	12,251	144,170	44,732	188,902
Mississippi	554,000	186,000	6,000	746,000	1,400	3,200	9,000	11,000	20,000
Missouri	1,448,500	340,025	4,600	1,793,125	.....	9,700	.....	.....	119,000
Montana	260,313	116,482	(2)	376,795	(3)	2,566	14,717	19,275	33,992
Nebraska	552,946	167,897	1,603	722,446	422	5,412	64,088	10,951	75,039
Nevada	130,000	40,000	.....	170,000	.....	2,000	8,000	.....	8,000
New Hampshire	201,000	36,800	.....	237,800	.....	2,000	.....	.....	22,000
New Jersey	2,111,158	269,765	5,102	2,386,025	4,474	11,938	27,905	35,290	63,195
New Mexico	334,634	118,053	2,075	454,762	346	7,288	.....	.....	41,604
New York	4,678,000	550,000	21,000	5,249,000	28,000	17,000	.....	.....	167,000
North Carolina	1,374,317	305,026	2,300	1,681,643	3,068	5,963	95,928	28,278	124,206
North Dakota	231,000	110,000	60	341,060	(3)	1,415	3,910	1,780	5,690
Ohio	3,600,000	413,575	4,425	4,018,000	(3)	39,000	14,000	244,000	258,000
Oklahoma	877,353	286,478	869	1,164,700	1,431	12,961	12,360	16,554	28,914
Oregon	815,715	67,756	1,264	884,735	(3)	8,015	39,622	15,364	54,986
Pennsylvania	3,625,000	500,000	9,000	4,134,000	2,900	27,700	5,000	113,000	118,000
Rhode Island	301,150	37,300	840	339,290	2,340	1,620	.....	.....	18,340
South Carolina	720,986	143,075	1,600	865,661	1,585	7,082	4,418	11,077	15,495
South Dakota	254,476	93,458	877	348,811	.....	2,402	.....	.....	38,672
Tennessee	1,110,000	237,000	4,250	1,351,250	.....	9,900	.....	.....	10,000
Texas	3,530,000	861,500	22,260	4,413,760	.....	47,000	30,000	320,000	350,000
Utah	328,685	81,648	765	411,098	.....	3,575	.....	.....	31,095
Vermont	136,279	13,839	(3)	150,118	(3)	1,242	.....	.....	13,229
Virginia	1,176,725	225,736	3,025	1,405,486	3,688	6,364	43,473	25,245	68,718
Washington	1,070,281	244,039	460	1,314,780	1,093	7,965	.....	.....	126,827
West Virginia	466,112	117,510	616	584,238	.....	3,269	14,060	6,318	20,378
Wisconsin	1,328,947	255,229	5,624	1,589,800	(3)	12,451	10,240	22,866	33,106
Wyoming	137,000	61,000	.....	198,000	.....	1,500	9,000	16,500	25,500
Total	61,552,264	11,325,504	160,930	73,038,698	117,345	564,998	1,082,409	1,642,368	4,624,916

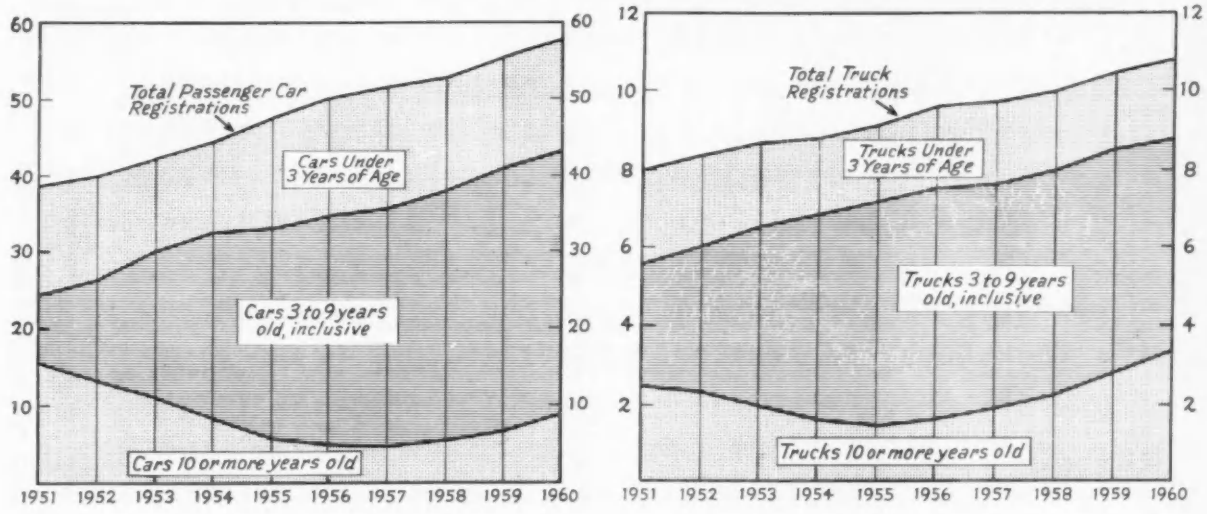
[1]—Includes taxicabs. [2]—Included with trucks. [3]—Included with passenger cars. [4]—Included with passenger cars, but shown separately for your convenience. [5]—Includes schoo buses, whether fee or non-fee. [6]—Includes house or camp trailer and light 2-wheel trailers pulled by car or utility truck.

Note: In the above tabulation we have endeavored to make as accurate a count as existing conditions permit. This census is compiled from material secured direct from the state motor vehicle commissioners. Wherever possible, duplications occasioned by transfers and non-resident registrations have been eliminated. Data are for the registration year, even though this necessitates partial estimates, in the case of those states whose registration year ends February or March of the following year, or whose data are not compiled by the time we go to press.

For Car and Truck Registrations in the 115 Leading Counties, see page 259

CAR AND TRUCK REGISTRATIONS BY AGE GROUPS

MILLIONS OF VEHICLES


Total Passenger Car Registrations
Cars Under 3 Years of Age
Cars 3 to 9 years old, inclusive
Cars 10 or more years old
Total Truck Registrations
Trucks Under 3 Years of Age
Trucks 3 to 9 years old, inclusive
Trucks 10 or more years old
1951 1952 1953 1954 1955 1956 1957 1958 1959 1960

Number and Per Cent of Car Registrations, by Age Groups*

Age in Years	1960 Units	1960 % of Total Simple	1960 % of Total Cumul.	1959 Units	1959 % of Total Simple	1959 % of Total Cumul.	1958 Units	1958 % of Total Simple	1958 % of Total Cumul.	1957 Units	1957 % of Total Simple	1957 % of Total Cumul.
Under 1	4,132,278	7.26	7.26	3,805,766	6.93	6.93	2,797,573	5.34	5.34	3,606,605	7.03	7.03
1-2	5,765,488	10.13	17.39	4,292,294	7.81	14.74	5,944,835	11.35	16.69	5,916,162	11.53	18.56
2-3	4,288,360	7.53	24.92	5,998,979	10.92	25.66	5,889,545	11.25	27.94	6,699,679	13.05	31.61
3-4	5,965,770	10.48	35.40	5,928,046	10.79	36.45	6,642,010	12.68	40.62	4,576,684	8.92	40.53
4-5	5,840,568	10.26	45.66	6,673,295	12.15	48.60	4,497,661	8.59	49.21	5,652,209	11.01	51.54
5-6	6,539,442	11.49	57.15	4,501,615	8.19	56.79	5,514,941	10.53	59.74	3,575,240	6.97	58.51
6-7	4,351,579	7.64	64.79	5,443,993	9.91	66.70	3,414,684	6.52	66.26	5,072,314	9.88	68.39
7-8	5,103,388	8.96	73.75	3,282,481	5.98	72.68	4,667,882	8.91	75.17	5,538,667	10.79	79.18
8-9	2,924,743	5.14	78.89	4,275,064	7.78	80.46	4,921,108	9.40	84.57	3,870,956	7.54	86.72
9-10	3,597,853	6.32	85.21	4,327,123	7.88	88.34	3,178,110	6.07	90.64	2,020,999	3.94	90.66
10-11	3,558,917	6.25	91.46	2,627,337	4.78	93.12	1,577,542	3.01	93.65	1,637,011	3.19	93.85
11-12	2,041,920	3.59	95.05	1,258,557	2.29	95.41	1,184,066	2.26	95.91	890,616	1.73	95.58
12-13	959,239	1.68	96.73	900,308	1.64	97.05	612,836	1.17	97.08	.....	....	....
13-14	660,584	1.16	97.89	451,705	.82	97.87	.....	....	....	.....	....	....
14-15	325,756	.57	98.46	.....	....	....	.....	....	....	.....	....	....
15-16	.....	....	....	.....	....	....	.....	....	....	184,519	.36	95.94
16-17	.....	....	....	.....	....	....	125,662	.25	97.33	698,539	1.36	97.30
17-18	.....	....	....	96,805	.18	98.05	454,704	.87	98.20	475,853	.93	98.23
18-19	75,203	.13	98.59	333,162	.61	98.66	316,141	.61	98.81	260,686	.51	98.74
19 and older	803,788	1.41	....	734,165	1.34	....	623,801	1.19	....	646,193	1.26	....
Total	56,934,876	100.00	100.00	54,930,695	100.00	100.00	52,363,101	100.00	100.00	51,322,932	100.00	100.00
Age not known	167,800	....	....	156,066	....	....	129,408	....	....	109,528	....	....
Total in use	57,102,676	....	....	55,086,761	....	....	52,492,509	....	....	51,432,460	....	....
Avg. age of known models	5.86 yrs.			5.79 yrs.			5.61 yrs.			5.51 yrs.		

*—Based on data from The Reuben H. Donnelley Corp. as of July 1 of each year.

Number and Per Cent of Truck Registrations, by Age Groups*

Age in Years	1960 Units	1960 % of Total Simple	1960 % of Total Cumul.	1959 Units	1959 % of Total Simple	1959 % of Total Cumul.	1958 Units	1958 % of Total Simple	1958 % of Total Cumul.	1957 Units	1957 % of Total Simple	1957 % of Total Cumul.
Under 1	560,776	5.21	5.21	566,105	5.39	5.39	395,829	3.95	3.95	406,138	4.18	4.18
1-2	859,908	7.98	13.19	629,527	6.00	11.39	742,912	7.41	11.36	840,858	8.66	12.84
2-3	625,485	5.81	19.00	742,020	7.07	18.46	848,399	8.46	19.82	918,848	9.46	22.30
3-4	726,133	6.74	25.74	840,993	8.01	26.47	914,163	9.12	28.94	675,750	6.96	29.26
4-5	814,255	7.56	33.30	908,011	8.65	35.12	669,355	6.68	35.62	819,688	8.44	37.70
5-6	878,040	8.15	41.45	661,229	6.30	41.42	811,948	8.10	43.72	738,951	7.61	45.31
6-7	635,598	5.90	47.35	801,193	7.63	49.05	723,909	7.22	50.94	899,406	9.26	54.57
7-8	766,010	7.11	54.46	709,590	6.76	55.81	878,368	8.76	59.70	969,071	9.98	64.55
8-9	675,492	6.27	60.73	861,674	8.21	64.02	936,031	9.33	69.03	787,591	8.11	72.66
9-10	815,515	7.57	68.30	906,233	8.63	72.65	750,521	7.49	76.52	727,784	7.48	80.14
10-11	851,553	7.91	76.21	718,531	6.84	79.49	679,820	6.78	83.30	516,350	5.32	85.46
11-12	664,951	6.17	82.38	642,621	6.12	85.61	467,943	4.67	87.97	446,414	4.60	90.06
12-13	583,212	5.41	87.79	433,731	4.13	89.74	397,158	3.96	91.93	85,327	.88	90.94
13-14	384,275	3.57	91.36	366,197	3.49	93.23	75,483	.75	92.68	33,135	.34	91.28
14-15	321,282	2.98	94.34	69,865	.66	93.89	29,235	.29	92.97	13,111	.13	91.41
15-16	61,686	.57	94.91	27,500	.26	94.15	12,377	.12	93.09	111,786	1.15	92.56
16-17	24,675	.23	95.14	13,229	.13	94.28	97,320	.97	94.06	213,678	2.20	94.76
17-18	12,423	.12	95.26	90,167	.86	95.14	181,068	1.81	95.87	135,968	1.40	96.16
18-19	80,410	.75	96.01	159,574	1.52	96.66	113,804	1.13	97.00	91,321	.94	97.10
19 and older	429,741	3.99	....	349,040	3.34	....	300,934	3.00	....	281,689	2.90	....
Total	10,771,420	100.00	100.00	10,497,030	100.00	100.00	10,026,577	100.00	100.00	9,712,864	100.00	100.00
Age not known	31,539	....	....	35,115	....	....	29,990	....	....	63,086	....	....
Total in use	10,802,959	....	....	10,532,145	....	....	10,056,567	....	....	9,775,950	....	....
Avg. age of known model	7.68 yrs.	....	....	7.48 yrs.	....	....	7.22 yrs.	....	....	6.97 yrs.	....	....

*—Based on data from The Reuben H. Donnelley Corp. as of July 1 of each year.

CAR REGISTRATIONS BY MAKES, STATES AND MODEL YEAR

BUICK

STATE	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	Earlier*	Total
Alabama	2519	4036	3600	6403	8420	10449	6190	7443	3748	4387	5744	1354	561	376	863	65893
Alaska	54	148	89	367	402	422	278	252	177	212	198	62	30	20	27	2738
Arizona	878	1378	1380	2687	3543	4852	2745	3032	1922	2206	2891	921	395	368	658	29856
Arkansas	1046	1730	1480	2548	3104	3783	2081	2591	1443	1587	1914	510	231	167	300	24515
California	11961	21525	15860	31580	55050	83009	40870	38092	23654	29228	40658	13771	6959	4903	11182	428302
Colorado	1435	2376	1979	3544	4868	6170	4095	4301	2819	3415	4751	1308	648	539	1082	43330
Connecticut	1811	2943	2538	5179	7961	9857	6303	6301	3435	3967	5168	1786	841	570	1405	60043
Delaware	450	749	628	1077	1594	1947	968	1016	559	614	705	228	111	68	157	10891
Dist. of Col.	623	1021	822	1567	2473	3238	1653	1486	838	915	1248	474	217	132	83	16790
Florida	5346	9266	7962	13327	17794	21599	12854	13319	7268	7600	9678	2848	1263	807	1458	132389
Georgia	2726	4316	3920	6040	8823	10475	5996	7114	3948	4288	5574	1214	646	434	856	66370
Hawaii	230	381	379	626	700	974	616	530	490	641	580	296	282	132	200	7057
Idaho	687	1180	819	1583	1964	2329	1411	1654	1142	1250	1752	530	303	202	438	17244
Illinois	14194	21531	17486	27657	33754	43789	26753	26213	13915	13822	15840	4721	1913	1310	2791	265689
Indiana	5325	9378	7859	14010	17127	22692	13380	12946	6878	7289	8156	2464	1190	846	1503	131041
Iowa	2682	4596	3968	6299	7224	8929	6304	6254	3593	4583	6056	1888	878	574	1323	65151
Kansas	2452	3889	3570	5017	6614	7955	5263	5372	3234	3653	4605	1296	618	483	928	54949
Kentucky	2169	3468	3143	5614	7514	9961	5981	6830	3843	4399	5604	1600	729	532	881	62268
Louisiana	2196	4054	3626	5661	7140	7809	4713	5341	2798	2949	3890	1149	475	331	519	52651
Maine	720	938	981	1667	2285	2553	1748	2014	1161	1349	1502	531	293	226	538	18504
Maryland	1853	3395	3143	4794	7662	9102	6237	5473	3012	3285	3763	1571	782	435	1055	55562
Massachusetts	3248	5244	5240	6671	13133	17004	11275	11875	6735	8191	10639	4126	1981	1479	2534	111375
Michigan	12260	19668	13447	20524	27979	40337	21593	20762	10311	8767	9243	2577	1427	804	2116	211815
Minnesota	4314	5985	5022	7859	9685	11246	7751	8868	4865	5577	7316	1932	993	664	1472	83549
Mississippi	1502	1947	1972	2810	3741	4194	2574	3135	1904	2174	2827	771	297	225	385	30458
Missouri	3816	5857	4880	7180	9429	12470	7277	7860	4502	5064	6512	2033	942	696	1127	79645
Montana	726	1367	987	1418	1714	1813	1315	1350	855	1035	1305	385	179	165	355	14969
Nebraska	1176	2013	1587	2682	3398	4501	2750	3302	1959	2526	3274	940	443	319	730	31600
Nevada	213	523	311	688	987	1446	769	694	501	621	845	332	177	137	239	8483
New Hampshire	417	468	656	1133	1464	1798	1185	1310	706	732	858	303	120	84	294	11528
New Jersey	6386	8701	8352	12613	19912	25990	13448	13731	8168	9763	12580	4350	1720	1239	2288	149241
New Mexico	451	1350	1143	1638	2053	2820	1476	1593	695	874	1102	280	135	100	215	16125
New York	15598	22330	20863	32500	44447	56858	33489	34117	18667	18886	22048	6982	2688	1727	3890	334890
North Carolina	3392	5260	4417	7631	10134	13136	7147	8843	4515	5417	7369	1898	836	640	964	81599
North Dakota	497	985	854	1166	1325	1334	1022	1140	735	812	985	279	130	115	207	11586
Ohio	10309	19781	15191	27308	37476	47133	28323	27407	13914	13659	15219	4892	2266	1471	2879	267228
Oklahoma	1909	2834	3463	4677	6002	8523	5527	5317	3016	3228	4502	1365	609	430	850	52252
Oregon	1339	2421	1760	3189	5416	6019	3503	3518	2625	3356	4501	1322	737	625	1100	41421
Pennsylvania	9837	15682	14799	24957	35821	44421	26143	27149	15398	15569	19198	6566	2633	1997	4570	264940
Rhode Island	498	843	710	1209	2122	2901	2136	1939	1073	1248	1664	513	232	137	356	17581
South Carolina	1437	2674	2353	3945	4893	6088	3515	4133	2390	2677	3648	997	462	303	591	40088
South Dakota	565	1084	892	1232	1424	2031	1514	1363	879	1116	1417	407	185	143	242	14494
Tennessee	2535	4201	4020	6250	8777	10881	6297	7415	3786	4449	5542	1321	637	461	773	67345
Texas	9190	15667	13989	21230	28211	35335	19726	19443	10565	10843	14429	3164	1520	1098	1927	206337
Utah	770	1289	956	1797	2680	3583	2238	2133	1365	1702	2612	758	336	292	465	22978
Vermont	376	485	430	725	1070	1109	795	968	496	506	575	197	95	67	182	8078
Virginia	2913	4823	4017	6468	9133	11516	6375	6902	3850	4221	5157	1636	717	528	850	69106
Washington	1164	2648	2049	4470	7537	9820	5726	5647	4287	5849	8764	3359	1939	1635	2934	67828
West Virginia	1355	2365	1965	3709	4429	5374	3317	4003	2365	2775	3119	1010	445	306	481	37018
Wisconsin	5453	7047	6246	10220	13241	16511	10692	10795	6009	7045	8253	2378	1047	719	1387	107043
Wyoming	411	791	613	934	1024	1242	863	900	588	671	539	258	122	93	202	9551
TOTAL	165414	268829	228416	378080	524673	679108	396220	405186	227799	250982	316617	97833	45615	32154	64652	4081378

CADILLAC

STATE	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	Earlier*	Total
Alabama	958	1328	1081	1437	1662	1492	1005	1235	1089	1260	1077	764	296	234	198	15116
Alaska	75	79	60	79	87	83	48	87	68	55	45	41	11	9	16	843
Arizona	584	1004	846	1202	1332	1141	782	949	848	945	777	641	277	265	334	11927
Arkansas	475	667	581	715	685	590	336	378	322	408	359	302	102	84	82	6066
California	11726	17837	14636	19989	21517	20807	15637	15860	14269	16578	17642	12070	5039	3858	6172	213637
Colorado	725	1155	1067	1305	1485	1533	1074	1258	1108	1142	1117	833	331	302	419	14854
Connecticut	1444	2043	1996	2406	2641	2429	1711	1777	1375	1632	1460	1067	509	433	672	23595
Delaware	322	419	369	425	420	339	223	237	165	197	136	132	40	52	74	3550
Dist. of Col.	684	982	736	813	840	726	457	429	317	355	314	266	115	108	124	7246
Florida	4733	7342	6012	7268	7544	6787	4591	4610	3824	4004	3382	2761	1036	782	854	65330
Georgia	1183	1878	1670	1882	1946	1747	1177	1405	1148	1398	1111	913	330	265	324	18377
Hawaii	173	219	156	250	255	273	199	189	152	201	158	83	66	32	47	2453
Idaho	384	429	418	503	590	473	316	410	311	390	321	213	93	87	79	5017
Illinois	7001	10168	8569	9280	9267	8126	4902	5342	3833	3787	3062	2048	840	605	785	77415
Indiana	2020	3181	2589	3258	3406	2973	1944	2165	1570	1677	1396	1027	449	361	367	28383
Iowa	923	1446	1248	1467	1482	1393	907	1105	793	919	837	566	248	184	218	13734
Kansas	889	1257	1070	1263	1297	1144	775	881	663	746	659	526	169	135	208	11680
Kentucky	676	1044	978	1266	1368	1250	854	1007	900	984	847	662	306	230	248	12620
Louisiana	1043	1698	1495	1659	1710	1455	902	996	738	900	806	580	248	105	177	14492
Maine	345	403	379	486	485	422	298	315	266	315	316	235	117	109	148	4639
Maryland	952	1624	1396	1721	1765	1502	1103	1049	827	874	839	580	307	197	277	14993
Massachusetts	2012	2997	2652	3250	3438	3420	2474	2825	2106	2554	2407	1918	911	841	1079	34884
Michigan	5963	7075	4671	5484	5033	4168	2464	2858	1902	1844	1366	942	387	318	590	45065
Minnesota	1543	1997	1733	1949	2038	1865	1235	1316	1012	1188	977	808	288	231	387	18547
Mississippi	415	564	521	607	705	603	323	457	366	452	462	329	146	92	85	6127
Missouri	1707	2133	1982	2219	2173	2030	1219	1360	999	1203	1050	841	346	239	345	19846
Montana	321	495	376	455	462	396	270	299	263	281	251	183	69	49	83	4233
Nebraska	502	693	526	634	655	636	383	456	417	420	341	291	101	108	102	6262
Nevada	309	504	319	445	492	513	365	399	296	420	407	306	134	126	169	5204
New Hampshire	209	300	325	395	322	328	223	273	193	210	169	146	54	45	82	3274
New Jersey	4883	5696	5240	6042	6140	5577	3843	4082	3156	3692	2997	2209	974	810	925	56266
New Mexico	269	535	449	587	696	578	382	410	335	375	297	209	57	55	99	5333
New York	12665	15200	12686	13504	13108	11338	6868	7546	5353	5880	4885	3564	1598	1196	1573	117094
North Carolina	1261	1871	1703	2067	2324	2082	1394	1735	1434	1723	1416	1095	364	282	329	21080
North Dakota	190	263	216	273	277	214	118	171	126	126	88	101	34	23	18	2238
Ohio	4253	7083	5921	7809	8162	7224	4860	5198	3945	4010	3065	2337	976	759	926	66529
Oklahoma	948	1239	1370	1594	1621	1584	1082	1072	898	1078	918	680	287	207	297	14875
Oregon	631	922	797	1107	1251	1170	791	967	868	932	918	627	271	230	310	11790
Pennsylvania	5488	7761	7278	8436	8480	7329	4791	5193	4001	4164	3555	2678	1212	1004	1603	72953
Rhode Island	401	584	591	726	695	727	499	450	356	523	383	299	114	106	141	6595
South Carolina	475	803	644	898	988	848	645	812	763	955	837	718	228	189	219	10022
South Dakota	187	292	263	315	264	313	185	215	195	195	177	114	38	28	28	2813
Tennessee	946	1352	1237	1492	1717	1598	1052	1297	1029	1261	972	662	260	200	251	15346
Texas	4602	6884	5789	6771	7227	6880	4377	4383	3381	3998	3554	2267	701	490	668	61792
Utah	384	540	492	612	831	804	587	659	664	781	602	451	160	99	163	7829
Vermont	114	162	171	209	171	145	120	125	91	107	93	73	37	16	49	1683
Virginia	1227	1814	1580	1995	2142	1932	1291	1401	1095	1222	1013	685	301	248	294	18240
Washington	569	1037	937	1427	1806	1907	1418	1785	1542	1876	1879	1508	727	577	813	19808
West Virginia	457	706	606	768	775	653	438	559	453	517	481	348	150	103	113	7125
Wisconsin	2010	2234	2054	2507	2571	2166	1513	1737	1284	1496	1261	833	364	261	286	22577
Wyoming	153	276	220	249	279	260	159	206	187	198	164	96	43	39	38	2567
TOTAL	92409	129995	110701	133500	138587	125975	84734	91930	72895	82458	73646	53586	22279	17403	23866	1253964

* Including those unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1960.

For State Totals and Summaries of Car and Truck Registrations by Makes, by Model Year, see page 103

CAR REGISTRATIONS BY MAKES, STATES, AND MODEL YEAR—*continued*

STATE	CHEVROLET																CHRYSLER													
	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	Earlier*	Total	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	Earlier*	Total
Alabama	17445	22079	17691	26416	30789	32702	22989	25748	16040	20526	21386	12267	7710	4863	6433	285064	675	857	743	1447	1242	1657	955	1540	872	1053	1172	818	602	218	234	14085
Alaska	845	1068	1092	1046	1148	1109	669	715	440	749	536	346	126	67	121	10097	76	74	49	117	113	96	52	112	85	79	87	35	20	15	27	1017
Arizona	5411	9657	8864	10952	11053	12301	7115	8456	5730	6910	7332	4652	2223	7794	3876	105726	221	466	483	961	814	1078	574	1037	602	784	888	624	371	263	388	9554
Arkansas	7112	11806	9613	13326	14774	15808	10454	11832	7141	9127	9352	5607	3092	2105	3109	134258	255	355	279	482	501	658	372	632	330	423	541	386	204	120	143	5681
California	88235	122312	111758	131022	142182	146921	86059	104396	63391	91462	97318	61694	32115	23528	60807	1363180	5037	6645	7241	15334	13363	14058	6993	13005	8829	12786	15264	9208	5425	3523	7357	144068
Colorado	10181	16196	14409	15224	16179	19282	12143	13653	8084	11659	12488	7709	4816	3726	7505	173254	509	730	748	1301	1145	1810	1108	1825	973	1349	1552	1093	639	419	660	15661
Connecticut	13793	16579	15280	19419	20327	21020	15171	16847	9602	13220	12090	6368	3170	1884	2997	187767	1106	1458	1254	2583	2541	3061	2110	2611	1115	1488	1978	1234	615	335	585	24075
Delaware	3665	4120	4168	4325	4285	4744	3236	3593	1935	2150	2072	1088	544	304	568	40777	160	234	261	407	334	286	212	319	135	151	188	134	71	46	55	2991
Dist. of Col.	5338	6360	5639	5601	6802	5959	3948	3554	2208	2349	2016	982	469	257	409	51891	438	596	638	788	764	866	533	718	328	436	534	327	145	70	102	7283
Florida	38476	46341	38452	47468	47278	57881	31368	31210	17213	21850	21693	11841	6400	4191	6234	421896	1784	2676	2676	4808	4321	5397	3256	4589	2181	2822	3248	2277	1232	659	812	42738
Georgia	20858	26863	21879	28721	33764	35193	24067	27288	16648	21622	22398	11678	6644	4370	7857	309850	913	1057	876	1450	1300	1661	915	1515	775	946	1261	767	588	224	322	14570
Hawaii	2421	3310	3036	3755	3819	4395	2981	3500	2997	4377	4157	1999	1541	841	2436	45565	166	182	151	235	179	326	134	172	198	310	161	211	200	83	147	2855
Idaho	3425	4578	4159	5175	5307	6055	3582	4644	3076	4208	4507	3097	1635	1313	2820	57581	226	283	248	494	521	645	311	543	372	447	492	358	243	183	231	5597
Illinois	70911	99711	79468	91485	86850	89617	61382	62583	32350	40652	36536	20546	11314	7260	11772	802437	4379	5302	4845	8942	8084	9580	6223	8340	3320	4390	5334	3424	1600	827	1105	75695
Indiana	30554	40215	29910	40599	42456	49155	29819	36904	20124	26141	24346	14764	7989	5279	7903	406158	1389	2098	1674	3776	3304	4289	2438	3824	1764	2256	2627	1830	963	576	698	33446
Iowa	16135	26803	23397	24986	22548	29209	21245	23214	13237	19597	20084	13608	7676	5952	11108	278799	772	1190	1014	1645	1592	2369	1420	2062	1052	1588	1996	1519	797	522	604	20142
Kansas	13895	22567	18704	21180	20796	24992	16982	17720	11396	16355	17250	11379	6954	5589	10460	236219	618	901	822	1452	1191	1746	1006	1533	927	1168	1440	1210	648	429	467	15558
Kentucky	13617	17038	15419	22435	25383	27479	18544	24185	14651	20208	20670	13132	6856	4674	6459	250748	474	670	623	1191	962	1401	804	1612	804	1145	1487	1136	623	337	414	13683
Louisiana	16432	27468	22952	29743	27686	29096	22510	21403	11962	14118	14561	8439	4135	2696	3693	256894	503	775	677	1545	1211	1427	999	1375	681	865	994	714	452	209	192	12619
Maine	5968	5833	5906	7339	7663	8621	6330	7575	4457	5496	4680	2347	1392	829	1513	75949	222	278	215	406	418	555	377	658	297	389	479	298	181	89	128	4988
Maryland	15594	20513	19147	22196	23848	22837	18229	18420	11049	12830	12508	6711	3472	2071	3811	213236	869	1332	1311	2185	1952	1913	1373	1840	1060	1296	1421	936	595	257	492	18832
Massachusetts	20737	29079	23909	30643	32085	39260	29262	32347	18454	26892	24239	14626	7085	4409	5593	338620	1522	2276	1709	3823	3306	4038	2643	4400	1946	2849	3623	2459	1448	766	964	37772
Michigan	64492	89735	63624	69789	74353	82881	49735	59334	29970	32265	28014	13265	7269	4328	8478	677532	3300	3642	2973	6845	4737	6984	3732	5808	2169	2773	3135	1784	931	456	801	50070
Minnesota	23077	28207	26079	29229	28641	31289	23649	27636	15928	22241	21153	13423	7603	5756	11943	315854	1217	1517	1415	2437	2019	2770	1894	2857	1393	2181	2666	1986	1013	553	748	26665
Mississippi	7834	11299	9500	13981	14982	15767	11963	12753	8750	10948	10957	6534	3643	2395	3113	144419	312	451	358	633	602	734	498	862	453	595	681	458	315	133	146	7231
Missouri	29005	38667	31916	37297	36314	40608	28886	31393	19193	26859	26723	16792	10608	7311	12355	393927	1101	1185	1056	2095	1581	2359	1442	2452	1200	1775	2273	1725	878	513	584	22219
Montana	3240	5732	4578	5595	5550	6738	4041	4714	3068	4148	4135	2681	1381	1087	2519	59207	191	352	318	538	503	595	341	434	292	379	407	315	207	120	237	5229
Nebraska	7944	12639	10840	11634	11286	12737	10689	11892	7897	10741	11161	7163	4835	3898	7637	142993	404	638	533	719	746	1044	774	1208	680	1008	1188	897	511	386	343	11059
Nevada	1869	2461	1966	2522	2438	2602	1351	1749	1087	1627	1533	1053	542	381	1204	24385	138	181	169	396	261	346	200	358	227	323	378	218	137	117	178	3627
New Hampshire	3755	4275	4399	5345	5117	6070	4278	4772	2639	3162	2575	1280	659	377	782	49425	155	208	219	362	331	451	268	429	179	229	291	177	87	38	71	3495
New Jersey	40294	42444	41185	44193	44237	49829	34923	38852	22891	30859	27369	15469	6830	3808	5430	448613	4114	4145	4372	8027	7045	6920	5452	7184	2902	3819	4831	3324	1749	825	1117	65826
New Mexico	3082	7395	5919	7762	7359	8437	4939	5341	2997	3807	3872	2253	1252	1000	1602	67017	213	349	368	630	475	616	381	539	316	319	361	286	139	103	140	5235
New York	84425	103086	91176	104341	94743	106133	75802	76011	41498	50650	41491	19673	8401	4357	8025	909812	9400	9242	9096	17823	15362	16005	12489	15682	5579	6788	8226	4887	2335	1139	1696	135747
North Carolina	20952	26273	21072	32226	36176	41059	26447	34332	19661	25634	26004	14445	8297	5561	8079	345218	815	1239	1002	1888	1879	2522	1223	2147	1012	1295	1538	1066	529	311	374	18838
North Dakota	3462	5320	5227	6002	4998	5569	4094	5133	2990	4239	4050	2878	1689	1342	2499	59492	260	399	368	535	405	436	289	578	272	350	411	348	169	107	90	4957
Ohio	59389	81381	65064	82391	86675	90873	55916	69157	38218	46659	41293	23094	12434	7534	10742	770820	2797	4471	4229	9407	7541	9519	5505	9130	3908	5113	6038	3921	1859	1043	1403	75984
Oklahoma	12449	18312	17899	20898	22631	25916	19717	18629	11557	15028	16744	9948	6035	4232	7559	227552	391	589	545	1034	729	1197	751	1182	786	881	1230	927	557	313	389	11481
Oregon	8402	13566	12212	14358	15465	17425	9664	11808	8040	11507	11995	7871	4343	3396	7706	157758	415	470	488	1050	1021	1407	725	1315	930	1357	1626	1011	595	422	830	13664
Pennsylvania	55891	73114	72045	84811	85441	90851	65279	77132	43636	55120	49092	27972	14069	8479	16441	819373	5023	6358	5731	11393	10465	11218	6772	10428	4509	6146	7641	5438	2782	1504	2617	98025
Rhode Island	3694	4632	4046	5431	5518	7792	5381	6128	3734	5397	5008	2920	1273	807	1114	62875	344	331	333	664	637	780	491	768	339	484	682	460	226	95	163	6797
South Carolina	9373	12917	10478	15655	19348	22697	15231	20314	12131	16867	18002	11073	6460	4571	7138	202253	324	495	443	735	730	854	493	964	476	559	685	522	325	162	214	7981
South Dakota	3297	5885	5622	5343	5088	6034	4830	5603	3226	4724	4837	3178	1905	1673	2774	64019	160	344	299	368	282	434	334	444	253	350	405	364	217	109	151	4514
Tennessee	16401	21654	18340	25909	29230	33095	22893	24981	14655	19497	19930	11998	7004	5033	6821	277241	503	823	663	1268	1146	1604	918	1532	700	995	1222	836	467	239	292	13208
Texas	60512	94157	79096	98792	98504	109345	72188	69394	38291	50853	54969	31811	16962	12282	20154	907310	2072	3202	3149	5998	4197	5811	3442	4908	2571	3089	3751	2508	1343	788	860	47687
Utah	3863	5654	5042	5754	6807	7002	4482	5868	3840	5701	5320	3258	1701	1205	2225	67122	268	310	320	786	693	870	307	827	528	685	735	547	318	213	271	7878
Vermont	2568	2818	2582	3193	3177	3608	2562	2930	1636	1821	1368	696	356	182	410	29907	161	159	138	205	215	293	204	351	112	169	195	111	64	37	47	2461
Virginia	19501	24816	20457	27777	28667	29538	20355	23719	13794	17660	16839	9588	5506	3548	4945	266510	952	1414	1268	2110	2289	2555	1609	2313	1089	1459	1667	1183	569	314	396	21185
Washington	7558	15894	12797	19705	20458	23263	13679	17623	11877	18327	20538	14901	8155	6777	16794	228246	323	742	616	1644	1641	2364	1286	2113	1599	2625	3204	2165	1379	1021	1905	24827
West Virginia	7790	10294	8276	14780	13892	13823	9440	13021	7933	10241	10030	6246	3527	2151	3058	134502	425	606	576	1170	1071	1265	785	1309	621	809	999	748	389	225	299	11297
Wisconsin	25670	29895	27001	31171	32303	32844	22981	27763	15808	22090	20388	12748	6863	4772	9003	321300	1308	1450	1343	2691	2335	2929	1638	2683	1331	1888	2496	1612	781	446	543	25474
Wyoming	2194	3423	2817	3111	3196	3505	2233	2639	1559	2100	2236	1318	792	573	1151	32847	94	160	178	238	202	344	201	311	190	265	280	222	132	62	108	2987
TOTAL	1013031	1376261	1176107	1432051	1468554	1604966	1075713	1210408	700089	922668	899785	530307	287752	196818	358985	14253495	59494	75905	71101	139059	120298	144143	89552	135118	65242	87726	105989	71042	38665	21884	33141	1258359

* Including those unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1960.

For State Totals and Summaries of Car and Truck Registrations by Makes, by Model Year, see page 103

CAR REGISTRATIONS BY MAKES, STATES, AND MODEL YEAR—*continued*

STATE	DESOTO															DODGE														
	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	Earlier*	Total	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	Earlier*	Total
Alabama	169	440	433	1038	837	1125	646	1194	719	708	954	649	429	119	17	9631	2722	1830	1457	2721	2306	3111	1952	3622	2390	2248	3373	2012	1279	599	748	32372
Alaska	16	31	37	67	46	51	33	47	37	42	35	31	18	9	5	505	88	65	69	162	193	157	90	178	78	94	79	65	43	26	50	1437
Arizona	78	189	252	598	589	671	423	623	487	446	585	412	305	218	305	6181	1044	1032	758	1728	1277	1836	908	1662	1031	1120	1280	1075	533	496	876	16656
Arkansas	99	239	234	444	405	521	325	596	395	364	508	291	124	68	89	4702	1205	961	827	1878	1427	1677	937	1598	1202	1177	1516	988	453	308	426	16580
California	1024	3174	3796	9947	9676	9869	5387	10178	6937	7908	10585	8351	5217	3492	5427	100968	18642	13854	13301	26982	21368	24448	11322	21301	14639	17026	20856	16209	10277	8315	18614	255152
Colorado	129	353	381	836	829	1055	605	958	668	678	954	641	339	246	354	9026	2129	1683	1706	2788	2389	2817	1591	2490	1823	1953	2841	1712	1031	788	1469	29210
Connecticut	266	708	738	1764	1644	1578	1171	1701	940	1112	1401	925	484	276	387	15095	3465	2183	2063	4876	4391	4163	2970	4551	3121	3448	3799	2530	1379	1019	1241	45199
Delaware	69	179	166	263	232	237	149	203	139	126	166	107	65	33	41	2175	812	511	361	744	729	620	298	711	402	426	537	357	220	113	134	6975
Dist. of Col.	80	221	271	567	665	747	424	450	221	252	305	203	102	53	64	4625	1121	810	809	1533	1173	1303	718	947	838	945	1105	635	314	247	267	12765
Florida	412	1178	1488	3352	3255	3302	2279	2990	1708	1820	2199	1451	860	498	521	27313	5721	4105	3973	8039	7300	7898	4307	7247	5182	5123	6488	4490	2303	1785	1854	75815
Georgia	201	537	489	946	975	1111	727	1161	711	680	896	522	488	172	213	9829	3114	2150	1835	3298	3041	3912	2189	3855	2722	2465	3557	2012	1489	741	1012	37392
Hawaii	15	110	90	186	241	579	371	463	620	985	617	328	369	117	190	5281	399	271	184	782	722	953	617	737	765	1048	928	847	789	350	774	10168
Idaho	71	157	178	381	370	404	224	394	294	277	358	296	181	104	171	3860	946	629	479	1022	873	1111	544	918	657	770	850	781	348	294	532	10854
Illinois	1017	2738	2683	6485	6146	6082	4042	6021	3324	3569	4503	2572	1307	658	708	51855	14386	8304	6474	13733	11795	14511	8367	12961	9983	10302	11669	7355	3478	2177	2543	138038
Indiana	491	1601	1367	3413	3165	3893	2172	3352	1801	1805	2231	1429	644	376	521	28261	6421	4454	3106	7480	6336	8058	4591	6559	4250	4744	5918	4247	1928	1423	1727	71222
Iowa	248	666	588	1287	1105	1426	916	1537	987	1061	1398	952	459	280	300	13208	3391	2562	2058	3725	3135	4262	2876	3998	2751	3498	4638	3527	1434	1073	1634	44560
Kansas	146	470	578	1137	973	1159	709	1134	741	776	1022	671	375	218	293	10402	2648	2101	1785	3042	2330	3277	1939	3090	2443	2504	3496	2333	1228	882	1323	34421
Kentucky	174	375	428	962	848	1045	664	1225	701	855	1004	687	350	191	250	9759	2408	1573	1293	2739	2269	3253	1961	3755	2480	2680	3183	2302	1238	879	1119	33132
Louisiana	180	486	498	1123	832	1018	685	1201	715	751	957	422	289	120	140	9427	2138	1506	1574	3053	2251	2857	1812	2784	1968	1892	2783	1963	1105	605	621	28912
Maine	111	140	186	430	468	502	368	556	305	361	369	229	169	70	103	4367	980	711	650	1065	1106	1163	836	1540	923	943	1177	746	506	326	447	13119
Maryland	282	817	906	1483	1909	1678	1011	1362	877	993	933	761	477	221	281	13992	3704	2840	2608	5005	4255	3945	2352	3648	2898	3053	3234	2130	1214	908	1050	42844
Massachusetts	489	1359	1248	3039	2800	3204	2439	3832	2357	2681	3270	2323	1368	701	760	31870	5493	4360	3070	6174	5567	6351	4850	8138	5660	6125	7700	5489	3333	2145	2156	76409
Michigan	1042	2702	2747	7126	5135	5607	3093	4781	2199	2200	2487	1450	695	356	500	42119	15849	8483	6734	17116	11062	16405	6485	10773	6885	6745	7399	4390	2151	1468	2082	124027
Minnesota	458	980	924	2012	1967	2111	1385	2201	1335	1481	1834	1029	472	263	387	18839	5061	2974	2571	5038	4318	4814	2684	4350	3362	3715	4940	3168	1339	1033	1547	50894
Mississipni	86	204	225	488	448	577	345	566	423	363	485	253	171	55	72	4761	1071	672	592	1185	1204	1580	955	1897	1184	1075	1531	924	590	269	333	14882
Missouri	311	775	868	2213	2038	2316	1439	2325	1323	1563	1966	1207	626	357	423	19750	6005	3222	2936	4877	3168	4979	2466	5152	3770	3807	5216	3659	1898	1259	1756	54170
Montana	58	172	161	336	264	303	227	327	226	227	260	190	98	51	127	3055	894	742	607	1189	1025	1203	678	914	610	676	784	605	339	211	436	10393
Nebraska	100	257	237	396	485	637	384	634	439	493	609	343	225	115	169	5523	1756	1145	978	1386	1372	1888	1208	1673	1264	1605	2052	1638	692	516	791	19964
Nevada	35	113	101	266	189	200	131	239	139	164	218	155	99	65	120	2234	389	323	278	489	371	490	237	457	302	325	356	265	178	138	295	4873
New Hampshire	36	94	103	315	285	330	244	336	177	198	202	125	65	29	53	2592	885	467	504	940	725	882	562	853	559	563	731	445	258	136	207	8720
New Jersey	1023	2027	2533	6638	6479	5234	3491	4636	2557	2887	3489	2379	1145	599	657	45774	11286	5484	5641	12684	10412	9526	5848	9634	7091	8556	10250	6490	3498	2474	2397	111251
New Mexico	33	171	205	421	310	392	180	307	206	159	220	135	79	53	59	2930	484	741	615	1131	775	1102	563	882	573	496	781	452	223	185	288	9289
New York	2047	4464	5648	12975	11799	10355	7924	10795	5477	5603	6917	3861	1883	900	1061	91707	24890	13209	13582	29410	22323	21724	15965	25119	17192	17799	20120	11693	5378	3548	3784	245736
North Carolina	241	774	763	1533	1535	1849	1018	1821	1041	1048	1298	803	376	258	242	14600	3265	2510	1911	3624	3322	4188	2366	4491	2973	3083	4132	2878	1411	1070	1097	42321
North Dakota	73	196	185	352	263	385	276	324	198	232	282	183	119	38	69	3175	850	693	627	982	770	977	541	744	530	633	659	545	241	160	239	9131
Ohio	1042	3151	3222	8464	7977	7912	4941	6902	3609	3883	4724	2950	1506	833	1086	62202	15136	11548	9629	22006	18671	19244	10316	15646	10444	10809	13224	8561	4203	2972	3480	175889
Oklahoma	150	352	387	913	877	1104	703	1065	855	826	972	598	361	189	195	9547	1627	1297	1363	2416	1990	2809	1388	2315	2225	2011	2611	1860	995	690	1028	26625
Oregon	96	419	441	1067	1024	1345	660	1196	815	848	1201	920	500	407	579	11518	1442	990	1045	2533	2660	2914	1399	2431	1682	1950	2641	2128	1051	912	1761	27519
Pennsylvania	1894	3754	4057	9489	9230	8517	5258	8481	4426	4803	6133	4235	2102	1212	2301	75892	20138	11606	9950	21602	19602	20948	10757	18647	12578	13699	16321	11103	5574	4076	5563	202164
Rhode Island	66	137	198	525	310	600	334	588	286	392	487	328	165	83	64	4546	937	521	425	872	766	1181	735	1495	953	1061	1395	949	440	283	360	12373
South Carolina	104	313	307	668	639	811	472	822	539	487	657	414	252	115	136	6736	1519	1129	821	1519	1448	1981	1136	2249	1520	1648	2194	1546	781	504	682	20677
South Dakota	73	187	175	306	224	322	202	348	233	272	294	184	114	62	74	3068	641	673	528	837	615	1008	684	979	601	783	877	787	386	281	334	9974
Tennessee	216	614	527	1139	996	1371	789	1361	755	769	1032	589	327	183	224	10892	2865	1970	1660	3453	2743	3885	2191	4182	2820	2692	3630	2364	1296	806	928	37485
Texas	549	1541	1668	4139	3119	3690	1883	3289	2159	2078	2606	1458	768	422	546	29915	7888	5548	5263	10801	7888	10660	5892	11337	7841	7226	10598	7543	3196	2409	2851	106941
Utah	143	313	283	644	669	736	342	669	399	397	540	430	229	141	222	6157	859	667	601	1157	851	1295	499	1191	737	822	1079	838	468	356	507	11927
Vermont	43	74	79	149	164	160	116	167	123	133	134	66	50	24	41	1523	506	368	257	501	466	449	390	585	389	316	385	243	149	75	114	5191
Virginia	402	871	994	1842	1925	1991	1298	1685	957	1005	1275	879	471	288	282	16165	3959	2781	2403	4273	3980	4752	2684	4040	3149	3214	3913	2721	1435	992	1244	45440
Washington	137	460	444	1262	1251	1965	1080	1754	1420	1577	2210	1812	1205	908	1663	19148	1534	1958	1507	3897	3459	4442	2194	3839	2788	3608	4664	4123	2333	2036	4180	46342
West Virginia	135	431	370	920	870	921	557	886	455	532	619	461	257	120	137	7671	1798	1275	1086	2928	2542	3128	1531	2821	1927	2038	2215	1638	831	648	698	27082
Wisconsin	348	881	872	2342	2391	2326	1435	2321	1438	1454	1822	1227	602	367	397	20223	6586	3547	2830	6037	5332	5546	3180	4837	3983	4471	5082	3402	1442	1034	1470	58779
Wyoming	33	122	109	215	203	264	124	196	141	138	168	113	68	34	53	1981	335	300	273	480	441	514	292	434	288	344	450	337	143	115	210	4936
TOTAL	16739	42717	45868	108902	101126	105589	66101	102198	60034	64462	80391	53038	29429	16750	23233	916575	223432	145336	127837	267650	220639	256197	143633	240055	168386	179331	221216	151080	78841	56135	79177	2558745

* Including those unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1960.

For State Totals and Summaries of Car and Truck Registrations by Makes, by Model Year, see page 103

CAR REGISTRATIONS BY MAKES, STATES, AND MODEL YEAR—*continued*

FORD

STATE	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	Earlier*	Total
Alabama	14093	22201	14123	26992	24399	26413	20290	22035	10444	14459	15333	7498	1848	1660	5275	227063
Alaska	624	1150	807	1348	1272	1018	798	834	424	362	311	199	31	57	217	9452
Arizona	6342	9334	6653	12010	10614	10209	7519	7813	3940	5036	5387	3390	616	813	3323	92999
Arkansas	7204	11313	8004	14304	13614	14304	10675	10090	5046	6082	6739	3124	657	854	2515	114525
California	100786	128752	87043	163054	129249	123409	95411	101822	50027	64398	68664	41841	7622	11460	53861	1227379
Colorado	9368	14454	10196	15945	14009	14931	11419	11321	5987	7571	8236	4907	964	1307	6105	136720
Connecticut	13051	18765	12514	21611	19385	17328	15255	14580	6347	7376	6797	3488	493	649	3172	160811
Delaware	2515	3782	2538	3836	3594	3228	2277	2503	1072	1178	1167	605	105	102	479	28981
Dist. of Col.	5629	6369	4168	6346	5425	4715	3685	3317	1542	1512	1431	738	94	107	417	45495
Florida	37346	44261	31209	52177	43625	42122	31350	28837	14092	15409	16137	8508	1640	2085	7901	376679
Georgia	18952	28675	19098	33799	32270	32652	24923	25113	12351	17201	19041	8429	2316	2592	9389	286781
Hawaii	2065	2914	1990	3034	2786	3338	2411	3015	2537	2302	1864	1240	364	538	3939	34337
Idaho	3278	4617	3324	4926	4750	4718	3332	4209	2320	2867	3102	1988	352	562	1910	46255
Illinois	56873	91537	55014	91429	72767	65434	51703	50902	22662	21720	22275	12163	2033	2253	9560	628325
Indiana	25507	40010	23945	44688	37212	36923	29729	28169	12951	14826	14537	7956	1253	1665	5871	325242
Iowa	14354	26338	18543	24855	20737	23134	20508	18894	9415	12701	15513	10571	1646	1905	9474	228588
Kansas	12525	20567	15248	20866	18773	20078	17353	16472	8514	11088	12423	7234	1322	1890	7734	192085
Kentucky	12021	17367	11196	22532	20752	23051	18057	20190	10680	13875	14035	7570	1181	1399	4311	198217
Louisiana	16011	23920	18020	29348	24205	23836	18342	17557	7660	8791	10212	5125	1231	1377	3717	209350
Maine	4644	5754	4967	6810	6975	5982	4931	5357	2634	2935	2423	1134	343	348	1482	56719
Maryland	12962	19838	13531	21442	19784	17029	16781	14219	7086	7279	7370	3730	835	717	2451	165054
Massachusetts	18009	34284	21573	34533	34321	33721	28448	28955	14018	18133	17734	9492	1592	1914	5792	302519
Michigan	67596	97584	51726	92984	67798	73528	61415	65648	27157	25286	21477	9689	2571	3019	11562	679040
Minnesota	20415	31229	21232	32508	25878	27081	22329	22917	11571	15210	16703	10062	1684	2156	11934	272909
Mississippi	6980	10147	7872	13570	13502	13480	10969	11860	6083	8695	9479	4606	1043	1083	3067	122442
Missouri	23646	34056	23378	36270	28677	32510	26520	25834	12546	15197	16992	9523	1635	2099	7014	295897
Montana	3244	5552	3865	5615	5590	5398	3949	4276	2000	2509	2563	1600	280	394	2111	48845
Nebraska	7761	13259	9414	12617	10800	12300	11161	10981	5853	7953	9093	5785	1439	1606	6784	126806
Nevada	2013	2566	1853	3041	2669	2578	1761	2007	1035	1246	1289	832	160	247	1172	24469
New Hampshire	3214	3427	3260	4501	4435	4499	3434	3509	1685	1746	1353	534	190	197	857	36841
New Jersey	27804	40577	27581	48513	42702	37617	32971	33909	16116	18441	16859	8136	895	1353	2698	355972
New Mexico	2874	6783	4441	7507	6475	6470	4613	4572	2095	2460	2435	1486	308	312	1532	54363
New York	77453	100731	67151	113164	92407	82277	68794	62487	27336	28680	24393	11427	1543	1952	6421	766216
North Carolina	20626	31386	20868	36467	37373	37910	26945	30152	14477	21001	23146	11393	2097	2840	7657	324338
North Dakota	3538	5946	4762	6436	5027	4803	4127	4585	2301	3227	3368	2351	474	626	2925	54495
Ohio	57252	90372	54470	97418	83705	78837	61211	61095	27682	30204	26762	12708	2560	3286	10575	698137
Oklahoma	12192	16070	14027	21222	20401	23189	19116	17220	10122	11515	12691	6273	1986	2137	7192	195353
Oregon	8536	12905	8934	14372	13947	13232	9499	11470	5728	7184	7946	4697	866	1176	3885	124377
Pennsylvania	47136	67768	47342	80720	80009	73364	53762	64130	29552	32140	30087	15223	2042	2921	11878	638074
Rhode Island	4285	6090	4397	6488	5551	5531	4856	5442	2712	3412	3119	1379	192	221	967	54632
South Carolina	9501	14644	9751	17376	17722	18589	14010	16997	9107	13319	16575	8345	1495	2008	7157	176596
South Dakota	3138	6201	5070	5907	4937	5628	4963	4706	2447	3331	3730	2516	520	596	2252	55942
Tennessee	14648	22244	14893	27367	24581	27346	20700	21374	10538	14292	15004	7999	1463	1775	4861	229090
Texas	55349	84846	57000	99127	80833	81627	63879	60642	28072	34457	40859	21661	4337	5070	17644	735403
Utah	3680	5107	3730	6759	5559	5925	4284	5078	2906	3700	3984	2373	388	523	2038	56034
Vermont	2271	2758	2232	3249	3170	2737	2144	2266	998	943	734	294	108	118	459	24481
Virginia	18416	27032	18776	30988	29645	28066	22141	22259	10977	13288	13659	6993	1238	1809	4644	249931
Washington	7994	17526	10991	21055	20354	20227	16274	18843	10022	13822	15438	11407	2070	3136	10257	199216
West Virginia	6721	10680	7151	15061	13845	12068	9353	10916	5435	7379	7169	3833	698	1033	2618	113960
Wisconsin	22886	31076	21715	34178	28021	27316	23245	22200	10816	11994	12651	7280	1010	1406	7163	262957
Wyoming	1710	2950	1945	2880	2635	2579	1933	2164	1090	1251	1368	871	188	247	1043	24912
TOTAL	936818	1377704	913536	1553243	1338766	1314185	1045615	1055543	510208	610981	631655	342206	64024	81580	309242	12095306

HUDSON

1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	Earlier*	Total
			59	176	326	507	657	522	564	364	312	132	96	93	3808
			3	28	48	29	42	31	39	17	19	4	2	2	264
			31	132	284	249	385	378	562	424	363	150	62	106	3126
			25	118	237	204	222	169	241	162	193	77	45	44	1737
			211	2444	4381	2534	4999	4914	6783	5192	3757	1955	938	1484	39592
			70	426	540	533	631	658	995	838	872	151	83	176	5973
			79	430	606	700	843	620	803	469	424	162	75	138	5349
			7	20	24	46	87	56	98	37	34	15	3	15	442
			18	77	120	177	181	176	146	133	88	35	8	24	1183
			138	903	1370	1148	1362	1061	1424	941	754	273	159	238	9771
			20	65	130	277	463	358	483	315	306	121	87	125	2758
			1	20	44	61	112	37	47	46	45	31	16	20	480
			49	235	244	173	326	293	417	296	281	135	59	101	2609
			263	1242	3148	3662	3422	2123	2970	2064	1403	390	201	362	21250
			159	677	1113	1240	1308	911	1361	967	895	276	161	252	9320
			106	436	634	587	592	394	890	728	828	209	118	278	5800
			92	370	551	619	667	728	979	703	714	255	137	240	6055
			52	192	285	447	601	483	627	387	417	147	65	89	3792
			24	114	180	205	308	224	314	203	262	119	54	57	2064
			41	188	207	297	319	244	292	191	182	65	31	74	2131
			117	297	446	537	710	732	644	423	311	139	48	107	4571
			138	825	1168	1453	1490	1138	1913	1365	1022	482	217	308	11517
			233	1131	1428	1942	2345	1307	1825	1186	813	384	213	445	13252
			105	600	842	900	936	653	1121	1032	931	246	98	225	7689
			18	26	57	127	233	151	184	114	134	49	35	38	1166
			41	185	371	509	671	535	846	606	698	238	150	144	4994
			37	247	261	297	306	254	404	285	233	71	44	64	2503
			41	146	204	211	242	299	511	297	254	109	38	83	2435
			3	14	54	52	110	133	147	123	90	46	13	20	805
			28	101	172	241	255	161	186	84	83	40	14	33	1398
			104	706	1088	1789	1899	1574	2278	1346	982	399	149	181	12473
			13	59	92	90	156	134	196	117	95	35	13	22	1021
			407	1501	1968	3318	3451	2532	3060	1954	1360	533	203	350	20637
			34	287	531	426	579	441	623	407	367	191	99	104	4089
			17	111	110	95	111	94	198	96	140	37	13	37	1059
			249	1216	1850	2611	2561	1814	2532	1533	1381	490	260	388	16765
			53	187	287	311	372	401	494	424	337	161	65	115	3207
			41	244	376	357	669	680	1002	589	513	249	127	208	5055
			396	1745	2851	2750	3097	2499	3580	2177	1799	721	363	683	22661
			30	118	178	250	327	190	258	155	151	64	24	44	1789
			11	64	260	262	356	292	383	266	241	117	60	90	2402
			17	122	171	122	168	132	264	194	200	37	21	28	1476
			31	163	324	372	467	446	540	369	363	127	70	77	3349
			81	605	1043	737	1038	958	1159	981	883	381	183	246	8295
			18	93	190	182	338	353	571	502	491	108	41	90	2977
			13	51	42	58	68	58	70	44	44	8	8	21	485
			56	349	629	697	671	626	681	403	408	128	66	88	4802
			86	632	938	739	1144	1168	1927	1256	1129	601	351	603	10574
			35	243	386	319	348	309	454	250	275	109	66	53	2845
			181	1460	1897	1128	1128	760	1479	1047	808	254	99	216	10457
			12	65	89	118	101	119	178	130	116	32	20	37	1017
			4094	21886	34783	36595	43871	35321	49741	34232	28781	11288	5571	9048	315209

* Including those unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1960.

For State Totals and Summaries of Car and Truck Registrations by Makes, by Model Year, see page 103

CAR REGISTRATIONS BY MAKES, STATES, AND MODEL YEAR—*continued*

STATE	LINCOLN																MERCURY														
	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	Earlier*	Total	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	Earlier*	Total
Alabama	158	238	244	386	462	277	354	433	244	248	214	189	25	13	38	3503	1462	1855	1547	3889	4777	4777	3412	4934	2172	3000	2959	1350	267	192	334	36927
Alaska	11	25	21	34	50	23	31	27	22	11	10	9	2	.....	1	277	58	142	144	249	258	286	224	234	114	146	81	54	5	8	7	2010
Arizona	148	253	284	359	439	256	351	307	207	192	125	167	27	21	83	3219	745	1213	1034	2261	2310	2318	1853	2001	1299	1538	1236	767	104	186	245	19110
Arkansas	93	110	95	167	194	118	150	128	103	92	61	75	4	11	9	1420	711	1111	766	2167	2749	2457	1565	1885	1006	1268	1096	531	69	112	155	17648
California	2072	2921	3851	6154	7890	3720	5065	7102	4310	2836	2049	2542	412	423	1079	52426	10354	13076	11790	28334	40627	40745	28429	31010	17229	23041	18457	10552	1476	2547	3879	281546
Colorado	165	255	296	468	627	344	565	568	335	275	222	237	22	30	72	4481	1077	1657	1698	3130	3503	3753	3014	3422	1798	2630	2439	1435	198	312	486	30552
Connecticut	232	360	403	712	663	449	558	500	296	290	189	235	33	37	112	5069	1615	1933	1641	3395	4562	3971	3836	3930	1889	2594	2040	964	129	155	236	32890
Delaware	35	44	55	125	126	82	114	84	45	39	33	33	1	.....	9	825	277	414	358	800	871	667	475	523	232	289	226	114	10	28	44	5328
Dist. of Col.	127	141	130	199	237	98	137	149	69	89	79	72	10	10	11	1558	461	691	709	1227	1216	1110	869	887	376	459	385	195	19	14	32	8850
Florida	979	1516	1583	2047	2409	1187	1472	1409	833	764	595	611	65	68	72	15610	3200	5006	4642	9173	9455	9513	6811	7803	3495	4911	4383	2143	270	343	482	71630
Georgia	153	288	273	355	531	260	391	413	248	218	206	183	27	17	36	3599	1354	1981	1713	3904	4764	5393	3839	4974	2248	3009	2930	1395	292	316	508	38820
Hawaii	12	21	28	25	41	46	48	45	52	34	35	21	4	4	14	430	107	157	146	447	643	951	742	625	467	545	613	304	68	93	145	6053
Idaho	54	98	119	177	233	114	139	163	101	86	68	88	4	11	19	1474	421	621	601	1049	1283	1232	930	1243	748	931	668	501	51	92	150	10521
Illinois	1498	2186	2033	2700	3141	1461	1903	1641	908	711	495	523	70	40	148	19458	6885	10731	8143	15984	17620	17453	11924	14535	5825	7479	5667	2757	346	302	713	126364
Indiana	364	562	669	1021	1214	652	751	863	478	423	240	283	28	21	68	7637	2895	4270	3053	7817	8687	7987	5368	6553	2931	3586	2565	1459	215	218	379	57983
Iowa	140	265	291	405	524	323	424	422	241	240	187	216	18	27	66	3789	1755	2867	2470	4322	4607	4847	3809	4481	2061	3316	2905	1941	158	215	353	40207
Kansas	163	258	252	324	454	280	368	378	241	188	130	192	19	25	29	3301	1205	1907	1801	3543	4024	3965	2999	3431	1854	2525	2227	1368	141	219	332	31541
Kentucky	105	109	175	259	335	157	266	270	192	175	123	153	17	12	45	2393	1256	1678	1739	3536	4143	3747	2927	3836	2007	2482	1824	1145	162	173	245	30900
Louisiana	137	293	350	404	472	295	332	324	206	159	140	150	19	15	36	3332	1350	1954	2010	4321	4522	3898	2902	3117	1489	1964	1884	1049	147	156	270	31033
Maine	53	76	93	127	129	98	109	110	82	59	60	50	8	7	16	1077	557	635	637	1078	1311	1190	1015	1213	663	875	597	325	49	69	84	10298
Maryland	129	267	275	397	492	306	437	465	248	227	188	132	22	12	32	3629	1197	1915	1710	3586	3974	3860	3196	3432	1757	1831	1757	695	164	108	179	29361
Massachusetts	369	805	653	985	1190	716	927	895	585	579	405	459	55	68	104	8795	2142	3537	2576	5725	6570	6372	6323	7340	3519	5206	4273	2623	323	448	525	57502
Michigan	1164	1360	1328	2103	2439	1171	1430	1514	739	573	387	317	41	46	141	14753	9508	13007	9570	17525	15116	16474	10536	11898	4518	6690	4855	2225	310	421	820	123473
Minnesota	285	406	433	663	809	399	533	503	300	310	184	266	28	28	57	5204	2434	3161	2835	5562	5677	5640	4379	5249	2627	4106	3529	2087	191	308	529	48314
Mississippi	53	117	86	135	168	106	122	168	84	109	77	103	8	9	18	1363	575	796	597	1674	2239	2126	1476	2196	1163	1534	1239	686	166	134	174	16685
Missouri	244	359	428	531	651	408	495	498	297	327	225	248	23	27	43	4804	2405	2638	2274	5109	6233	6683	4727	5729	2762	4100	3741	1830	238	261	451	49181
Montana	58	90	88	117	173	86	119	135	87	77	67	73	7	5	22	1194	476	750	634	1014	1181	1107	812	1014	544	782	656	387	38	74	125	9594
Nebraska	82	94	162	166	239	143	227	248	158	143	126	121	14	12	22	1957	848	1264	1157	2122	2323	2703	2286	2494	1464	2166	1774	1105	122	197	328	22333
Nevada	124	137	111	161	198	86	131	119	73	64	74	95	6	16	22	1417	408	515	361	728	817	741	471	601	357	497	373	276	40	66	82	6333
New Hampshire	47	62	86	104	145	98	102	87	61	37	30	21	5	4	13	902	357	482	442	763	1015	949	751	796	391	495	370	159	35	35	46	7086
New Jersey	814	1022	1186	1664	1944	919	1246	1150	624	705	488	587	65	63	111	12586	4078	4692	4248	8934	10101	10584	11284	10226	4822	6807	5441	2498	233	313	415	84476
New Mexico	41	89	119	170	208	160	162	168	89	77	55	62	7	8	18	1433	341	688	705	1335	1588	1553	989	1153	600	766	545	387	40	84	111	10835
New York	1832	2224	2375	3824	4136	2101	2805	2378	1258	1160	820	843	98	89	253	26196	9494	12187	11348	23476	22970	22058	20114	19969	8166	10525	7623	3451	346	388	840	172955
North Carolina	185	294	309	463	574	372	381	488	298	275	191	251	22	10	26	4139	1592	2477	1759	4224	5623	5436	3559	5610	2589	3510	3266	1753	223	312	412	42345
North Dakota	38	67	102	116	129	58	78	95	51	31	26	40	4	2	12	849	510	714	546	940	1068	976	701	860	473	666	455	393	38	83	136	8559
Ohio	758	1032	1507	2632	2995	1577	2091	2029	1109	862	598	685	63	50	131	18119	7261	10720	9353	19258	19583	19035	14242	15833	6841	8938	6368	3425	378	507	635	142377
Oklahoma	136	177	265	316	446	356	416	378	257	177	197	172	47	19	62	3421	1075	1583	1570	3314	3532	4993	3594	3915	2087	2364	2545	1190	317	265	393	32737
Oregon	170	168	193	425	564	325	371	480	270	232	163	236	20	28	62	3707	997	1415	1520	2521	3528	3387	2149	2604	1705	2352	1689	1170	99	186	284	25606
Pennsylvania	888	1462	1711	2423	2883	1431	1855	1795	1030	953	711	877	79	67	248	18413	6405	8930	8261	16987	19084	16563	12834	15488	6740	9281	6774	4049	379	486	1029	133290
Rhode Island	60	97	140	185	181	120	156	120	76	84	50	79	11	10	30	1399	314	485	338	834	1161	1092	1118	1192	618	721	618	348	42	41	66	8988
South Carolina	71	148	135	170	223	144	168	215	176	157	117	122	17	9	20	1892	690	1234	1029	1946	2510	2523	1717	2729	1390	1979	2027	976	157	244	328	21479
South Dakota	42	44	67	110	102	78	83	112	64	65	43	73	2	5	9	899	428	651	501	871	907	1208	885	1073	549	998	873	595	81	94	151	9065
Tennessee	171	264	253	349	421	222	297	329	192	203	119	173	12	19	27	3051	1271	1876	1540	3949	4678	5060	3203	4115	1924	2433	2044	1119	195	249	344	33998
Texas	589	762	1091	1359	1792	1285	1581	1455	825	662	504	518	64	39	121	12627	3499	6244	6100	14150	15458	16983	11782	13608	6159	7894	8068	3876	454	545	1070	115688
Utah	78	89	148	231	326	156	231	250	158	141	96	158	10	9	16	2099	622	843	770	1490	1768	1672	1270	1590	1021	1392	1090	730	54	129	180	14621
Vermont	18	23	25	40	56	33	44	44	27	20	16	19	1	1	7	374	234	324	224	420	459	420	400	417	213	283	158	84	12	12	16	3676
Virginia	250	415	421	551	636	384	472	466	290	270	201	197	14	9	35	4611	1844	2788	2494	4782	5322	5045	3894	4485	5076	2517	1920	1075	127	179	249	38797
Washington	119	309	386	580	747	488	626	754	451	450	353	573	51	72	138	6099	838	2135	1801	3184	4213	4642	3699	4472	2817	4226	3365	2586	285	514	909	39686
West Virginia	80	156	125	207	285	160	192	249	121	113	102	107	4	6	11	1918	932	1219	1012	2738	2821	2315	1710	2208	1213	1674	1328	860	100	132	91	20353
Wisconsin	357	458	515	751	943	488	575	576	325	265	215	271	24	30	47	5840	2983	3055	2386	5932	6191	5853	4015	4790	2441	3583	2778	1519	129	173	340	46178
Wyoming	22	51	65	92	127	51	87	97	46	59	37	46	3	4	12	799	250	384	357	614	709	710	500	594	313	476	418	211	27	46	48	5657
TOTAL	15973	23067	26033	38448	46393	24649	31970	33806	19582	16536	12114	13953	1642	1568	3833	309367	103753	146618	126660	266333	300349	299023	225539	258317	123562	167390	137140	74497	9519	12754	20385	2271839

* Including those unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1960.

For State Totals and Summaries of Car and Truck Registrations by Makes, by Model Year, see page 103

CAR REGISTRATIONS BY MAKES, STATES, AND MODEL YEAR—*continued*

STATE	NASH															OLDSMOBILE														
	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	Earlier*	Total	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	Earlier*	Total
Alabama				506	605	1076	684	1093	1297	1259	472	225	242	101	85	7645	2995	4529	3919	4903	6939	8709	4683	4615	2564	2528	3130	1225	449	229	331	51748
Alaska				21	112	113	73	69	103	92	31	16	11	4	8	653	96	140	147	216	253	293	211	188	86	111	86	43	17	7	14	1908
Arizona				79	683	785	547	716	856	1038	427	264	199	118	112	5824	1159	2122	1842	2742	2803	3546	2277	2214	1232	1376	1750	781	301	226	437	24808
Arkansas				147	323	431	271	516	599	586	282	110	107	48	76	3497	1575	2471	1857	2380	3142	3774	1909	1617	890	913	1055	465	242	134	189	22613
California				842	8132	10277	6736	10485	12594	14448	6270	2541	2470	1547	1733	78075	17491	28476	20286	32693	43109	55624	34944	30584	18047	20626	27273	13627	5152	3514	6878	358324
Colorado				173	1057	1319	982	1186	1433	1743	1000	416	338	172	252	10071	1977	3178	2561	3606	4340	6077	4160	3592	2080	2266	2824	1247	467	389	677	39441
Connecticut				391	1893	2334	1508	1794	1293	1435	493	218	327	173	189	12048	2806	4909	3755	5340	7838	8542	5113	4395	2223	2510	3125	1509	577	362	615	53619
Delaware				91	126	150	122	200	206	202	58	30	25	8	17	1235	692	937	862	1028	1202	1314	764	725	343	345	450	227	79	50	109	9137
Dist. of Col.				34	250	356	261	263	280	289	108	46	42	10	27	1966	1160	2056	1266	1718	2151	2569	1350	1058	510	413	597	306	128	63	113	15458
Florida				461	2188	2937	2503	2795	3283	3597	1333	622	496	246	239	20700	7341	11713	9463	11937	15145	18877	10741	9021	4654	4657	5220	2545	1046	645	892	113897
Georgia				276	688	1003	744	956	1138	1189	496	217	301	126	150	7284	3335	5448	4508	5719	7381	9166	4781	4405	2558	2561	3618	1272	490	316	554	56110
Hawaii				34	184	226	180	157	140	216	101	56	161	42	66	1583	254	492	404	739	814	1163	695	553	567	664	541	309	232	89	177	7693
Idaho				143	489	482	363	533	613	732	407	211	125	73	113	4264	871	1244	1059	1290	1393	1868	1166	1272	726	836	944	566	203	154	286	13878
Illinois				1340	5423	7460	5837	7302	5989	6327	2514	1175	990	414	700	45471	17580	28876	21191	26530	29399	36190	21682	15335	6988	6251	7244	3452	1578	841	1524	224661
Indiana				812	1959	2527	2372	3266	2552	3092	1284	611	426	201	242	19344	7380	13488	9048	12075	14350	15931	9534	8095	3885	3970	4183	2168	1018	536	854	106515
Iowa				262	966	1337	1176	1580	1573	2038	1045	482	303	161	274	11197	3292	5869	4821	5450	5721	7979	5384	4820	2575	3126	3742	1811	705	471	729	56495
Kansas				341	1020	1401	1256	1474	2017	2191	929	426	314	183	232	11784	2746	4837	3701	4644	5227	6395	4260	3625	2112	2148	2439	1251	603	494	739	45221
Kentucky				161	478	900	810	1481	1385	1367	570	262	228	106	162	7910	2898	4772	3591	4969	6418	6858	4139	4293	2416	2490	2885	1458	571	308	532	48598
Louisiana				159	512	677	525	645	962	719	315	158	155	92	98	5017	3544	5820	5298	6483	7785	8221	4040	3228	1732	1738	2079	948	397	204	290	51807
Maine				114	681	719	455	521	330	369	186	78	114	42	60	3669	688	1095	971	1317	1737	1676	1164	1150	727	762	894	515	227	122	316	13361
Maryland				127	802	1006	913	1299	1304	1106	475	238	264	128	160	7822	2451	4915	3567	5015	6229	6613	3753	3085	1709	1575	1836	1026	433	264	482	42953
Massachusetts				813	3450	4603	3436	4271	3287	3669	1613	751	901	454	422	27670	4903	9182	7326	10204	14693	15898	10211	9354	4961	6316	7922	4296	1743	1141	1644	109794
Michigan				741	3687	3972	3178	3521	2090	2074	856	450	623	256	393	21841	15158	24636	15587	18109	20939	23746	13250	11473	4808	3907	4561	2201	1147	540	1401	161463
Minnesota				490	1351	1607	1419	1777	1914	2290	1333	738	498	261	406	14084	5674	7805	6102	8133	9818	11566	7479	6090	3156	3392	4114	1973	885	401	714	77102
Mississippi				68	190	420	251	403	555	541	228	137	162	73	68	3096	1773	2452	1973	2507	3392	3628	1911	1868	1143	1265	1464	594	237	99	195	24501
Missouri				560	1320	1899	1464	2383	2819	3364	1535	577	480	217	275	16893	4973	7558	5785	7549	8311	11183	6406	5550	2781	2859	3568	1847	810	584	813	70577
Montana				52	380	399	320	358	357	420	262	168	122	78	93	3019	845	1466	1049	1368	1580	1869	1233	1148	589	629	712	371	170	109	281	13419
Nebraska				116	402	536	490	648	766	857	463	247	177	86	101	4889	1654	2610	2025	2259	2577	348	2432	2128	1193	1351	1630	717	319	249	345	24970
Nevada				25	143	157	146	153	239	238	140	60	34	29	43	1407	456	709	538	841	925	1320	724	669	407	431	485	241	90	75	146	8057
New Hampshire				128	547	646	339	358	210	216	93	43	55	30	39	2704	527	792	672	988	1282	1402	867	867	416	440	505	232	109	60	164	9323
New Jersey				512	1943	2797	2632	3627	3196	3378	1214	506	570	256	310	20941	9161	12339	10939	12860	17317	19357	11330	9315	5062	5741	6743	3409	1355	794	1219	126961
New Mexico				61	266	329	256	299	360	446	216	93	58	37	34	2455	692	1642	1319	1647	1851	2420	1341	1063	642	546	594	233	111	49	161	14311
New York				1170	6250	7852	5810	6261	4788	4725	1712	803	784	344	488	40987	24696	38472	31419	34969	43887	48831	28260	22332	10716	10649	12488	6037	2260	1175	2254	318445
North Carolina				111	767	1285	935	1268	1493	1631	593	254	327	170	100	8934	3659	6064	4938	6867	9014	12224	6633	6676	3928	4015	5275	1828	631	394	469	72615
North Dakota				150	287	258	241	317	269	343	168	140	75	53	47	2348	834	1348	1109	1358	1299	1511	1028	789	409	506	551	285	128	69	116	11340
Ohio				598	3712	5001	4057	4773	3660	3800	1613	863	876	459	495	29907	12941	24727	17754	24450	30190	33780	20549	17614	8693	7733	8671	4704	2045	1129	1580	216560
Oklahoma				216	720	950	662	894	1386	1236	712	291	217	130	139	7553	2790	3917	3930	4888	5509	7655	4937	3554	2182	1994	2372	1024	447	325	535	46059
Oregon				158	1566	1748	1018	1415	1637	2085	879	441	424	256	356	11983	1827	2812	2045	2926	3959	5139	2877	3107	1817	2095	2502	1234	512	370	656	33878
Pennsylvania				814	4676	6149	4581	6273	5190	6108	2407	1225	1233	571	787	40014	12010	19991	16832	21573	28766	31686	18414	17863	8940	8522	10250	5587	2015	1353	2694	206486
Rhode Island				299	533	873	631	881	568	598	223	92	121	59	54	4932	698	1156	1000	1470	2088	2473	1519	1335	676	781	1039	595	212	110	217	15389
South Carolina				171	324	545	434	621	997	1143	420	166	182	90	76	5169	1409	2464	2027	2911	3874	5504	3147	3516	2337	2499	3253	1197	315	209	288	34950
South Dakota				57	310	385	319	324	340	436	267	143	87	42	55	2765	743	1457	1162	1168	1175	1690	1346	1003	593	766	814	400	168	95	173	12753
Tennessee				196	709	1052	818	1181	1448	1441	563	256	315	144	160	8283	3130	5145	4167	5269	7205	9598	4892	4313	2317	2269	2860	1196	463	288	433	53545
Texas				493	1888	2489	2001	2547	3992	3373	1526	626	580	322	320	20159	13187	22357	17681	21937	23866	31774	18833	13855	7543	6434	7976	3011	1254	715	1260	191683
Utah				65	396	361	310	480	644	687	393	207	148	82	86	3859	982	1562	1230	1782	2177	3037	2048	1925	1115	1177	1483	649	219	155	268	19819
Vermont				64	242	276	175	204	83	112	45	29	33	11	28	1302	284	457	344	509	668	668	423	507	268	273	325	165	44	36	81	5052
Virginia				281	961	1467	1234	1053	1183	1231	440	207	234	90	89	8470	3314	5583	3934	5659	7028	8718	4844	4364	2442	2443	2888	1287	450	260	391	53605
Washington				247	1909	2563	1583	2146	2721	3967	2126	1217	1015	626	939	21059	1380	3217	2386	3941	5371	7898	4929	5459	3231	4334	5693	3470	1562	1267	2525	56663
West Virginia				136	514	712	494	683	690	833	336	234	205	83	87	5007	1667	2763	2080	2770	3164	3605	2039	2069	1199	1360	1594	802	312	193	252	25869
Wisconsin				817	3951	5367	3616	4616	4271	4987	1757	1059	938	396	614	32389	7078	9037	6905	9175	10704	13715	8712	7178	3749	4120	4689	2433	972	554	882	89903
Wyoming				56	124	128	173	173	189	215	150	64	34	24	31	1361	465	845	615	848	848	1078	665	646	358	366	417	168	90	35	95	7539
TOTAL				16179	72079	94342	71341	92239	91289	100479	43079	20491	19166	9725	12130	642539	221261	361952	278960	361739	446853	537839	320029	275500	146293	151079	183353	88937	35790	22261	38990	3470866

* Including those unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1960.

For State Totals and Summaries of Car and Truck Registrations by Makes, by Model Year, see page 103

CAR REGISTRATIONS BY MAKES, STATES, AND MODEL YEAR—*continued*

STATE	PACKARD															PLYMOUTH														
	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	Earlier*	Total	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	Earlier*	Total
Alabama			15	32	188	420	246	841	584	550	348	293	141	52	142	3852	2675	4240	4291	7166	5961	9340	5584	9201	4893	6984	6843	5293	2835	1371	1549	78226
Alaska			4	3	18	44	14	51	25	22	20	14	10	1	10	236	356	471	324	523	480	491	334	377	230	257	206	129	72	36	36	4332
Arizona			20	36	213	372	252	540	402	456	214	269	201	73	216	3264	1456	2353	2412	4210	2932	3940	2319	3375	1923	2629	2542	2189	1109	843	1521	35753
Arkansas			23	27	77	173	100	301	239	250	124	169	78	17	53	1631	1258	2383	2352	3907	3627	4837	3138	4932	2455	3442	3289	2501	1100	620	799	40620
California			245	328	2545	4719	2220	6782	4704	6525	3155	3019	3198	1040	3634	42114	24444	34502	34834	54796	42559	46576	25892	43716	26431	37000	37853	31304	16897	12402	24387	493593
Colorado			28	48	290	507	302	651	507	658	401	353	213	73	303	4334	2242	3371	3822	6029	4038	5269	3283	5149	3107	4767	4750	4016	1856	1305	2515	55519
Connecticut			41	101	579	1138	613	1300	600	812	443	348	298	111	523	6905	5434	7553	6367	10088	7676	10045	6830	8024	4171	6295	5691	4429	2001	1236	2444	88284
Delaware			5	10	46	108	45	135	80	79	54	40	39	9	30	680	638	1600	1480	1936	1613	1679	910	1152	656	896	778	742	325	184	291	14880
Dist. of Col.			20	14	176	351	168	349	215	209	125	110	56	19	79	1891	1980	2695	2643	3766	3975	4109	2340	2499	1475	1858	1652	1107	517	299	420	31335
Florida			78	128	888	1815	1097	2776	1650	1876	1045	941	585	159	407	13445	9207	11620	12418	19119	12989	16390	10812	13489	7130	10570	10152	7831	3263	2215	3352	150557
Georgia			31	45	256	507	283	789	541	537	319	327	144	72	171	4022	3698	6481	5679	7769	6872	9482	6042	9156	5076	7012	7011	4972	3238	1553	2355	86396
Hawaii			7	14	43	84	64	95	64	115	75	63	62	28	118	832	1352	1296	1072	1556	1313	2196	1312	1478	1195	2057	1667	1350	865	618	1705	21032
Idaho			16	25	118	214	72	225	214	250	146	170	83	30	53	1616	799	1276	1274	1980	1587	1826	1085	1810	1167	1604	1698	1442	713	485	961	19707
Illinois			172	338	1747	2946	1833	3869	1538	2026	1177	1257	629	136	584	18252	14244	23428	21278	35925	27124	36761	21950	28922	13933	20291	17330	13401	6140	3622	5828	290177
Indiana			102	195	778	1463	616	2093	817	1037	569	659	369	86	229	9013	6477	10857	9053	17564	12517	17673	10398	16012	7393	10805	9710	8030	3721	2366	4216	146792
Iowa			26	58	242	641	308	652	486	673	467	537	307	63	231	4691	3623	6046	5817	8322	6041	8839	6013	8929	4851	7543	7218	6806	2874	2114	3436	88472
Kansas			36	55	308	541	242	713	579	629	400	414	201	55	126	4299	2603	4759	4910	6794	5044	7230	4715	7455	4195	6151	6234	5405	2582	1783	2770	72630
Kentucky			35	49	193	435	274	831	499	617	328	365	187	51	172	4036	2844	4371	4282	7346	5581	8018	4994	8326	4313	6504	6020	5057	2440	1554	2220	73850
Louisiana			27	49	267	449	208	819	509	420	229	247	117	37	111	3489	2303	4120	4515	7873	5609	8009	5192	7407	4063	5299	5455	3941	2027	1199	1332	68344
Maine			16	23	118	220	125	301	127	165	103	100	84	27	116	1525	1434	1961	1767	2810	2455	3220	2114	2765	1562	1939	1638	1133	732	411	801	26742
Maryland			36	61	467	803	501	890	617	593	438	465	231	75	301	5478	4903	7769	7019	12547	10388	10332	6781	8349	4960	5956	5586	4503	2021	1180	2480	94772
Massachusetts			45	100	745	1313	871	2003	1000	1427	694	767	510	189	631	10295	7198	12391	9823	15308	13376	17278	12434	15659	8862	13162	12288	10011	5033	3223	4520	160566
Michigan			123	207	1095	2345	1107	3071	1110	1171	475	616	448	90	458	12316	16684	23859	19408	38530	22513	32480	16141	22370	11253	13418	10455	7415	3639	2091	3955	244211
Minnesota			46	92	536	1043	522	1368	702	1072	723	613	294	66	288	7365	6282	8181	7787	11414	7822	10539	7123	11178	6013	8781	8507	7039	3081	2120	3851	109718
Mississippi			9	28	98	210	92	339	299	258	139	147	84	26	58	1787	1462	2242	2072	3439	3573	4835	3092	4909	2797	3767	3650	2540	1520	703	795	41396
Missouri			36	86	410	811	431	1150	783	874	535	670	274	102	328	6490	5726	8619	8696	14429	11375	16232	9306	14233	7166	10995	11425	8434	3895	2315	3891	136737
Montana			10	23	127	239	152	269	169	182	104	147	87	36	91	1636	781	1601	1396	2124	1677	1932	1432	1795	1050	1485	1388	1224	548	426	848	19707
Nebraska			24	41	189	414	174	383	225	432	251	277	138	42	96	2686	1599	2915	2912	3542	3130	4149	2911	4516	2742	4334	4118	3973	1840	1340	1965	45986
Nevada			11	18	102	172	57	190	146	184	76	88	67	26	76	1213	501	754	668	1112	819	983	574	923	566	746	685	595	321	236	555	10036
New Hampshire			7	13	80	130	98	171	85	95	61	68	41	13	71	933	872	1340	1293	1913	1580	1966	1386	1675	892	1049	923	678	427	212	441	16647
New Jersey			116	207	1124	2285	1560	3497	1683	2117	999	910	598	185	630	15891	13192	15531	16973	27026	21514	23180	16922	18858	10014	15422	13733	11062	4605	2806	3898	214736
New Mexico			10	16	72	173	75	211	153	171	89	114	41	23	68	1216	667	1541	1542	2279	1615	2206	1339	1984	1071	1394	1314	1039	448	294	507	19240
New York			256	466	2264	4527	2415	5923	2443	2978	1454	1510	906	215	939	26296	29481	39539	38254	59340	48046	52862	38567	39176	19168	27464	23054	17076	6569	3842	6116	448554
North Carolina			34	59	354	594	358	1104	734	796	460	461	232	57	159	5402	4331	7254	5841	9785	8873	10996	6955	10707	5967	8208	7968	6583	2729	1956	2546	100699
North Dakota			7	20	87	144	70	137	112	158	73	75	39	9	24	955	868	1871	1624	1942	1523	1922	1519	2146	1285	1760	1691	1504	801	501	725	21682
Ohio			160	303	1813	3408	1831	4585	2087	2286	1271	1334	696	204	682	20660	15619	24736	22143	41530	29394	35655	20493	28251	14175	20259	16723	13911	6912	4579	6946	301326
Oklahoma			21	54	216	448	189	606	453	408	324	324	215	69	166	3493	2002	3137	3911	6241	4739	6125	3822	6651	4314	5409	5350	4303	2063	1287	2079	61413
Oregon			25	48	252	441	201	667	649	816	419	401	291	95	230	4535	2084	3067	3324	4738	4121	4872	3190	5006	3121	4381	4766	4015	1974	1432	2971	53062
Pennsylvania			254	478	2720	4158	2683	5964	2969	3756	2016	2244	1383	350	1292	30267	19841	28582	28838	49131	44345	48493	27512	38474	20096	29611	26724	22376	9369	6246	11560	411198
Rhode Island			5	17	132	243	126	337	151	250	121	85	63	17	112	1659	1524	1979	1785	2752	2186	3683	2399	2695	1401	2158	2142	1787	790	458	701	28440
South Carolina			6	18	88	253	195	558	393	525	247	256	167	60	158	2924	2109	3377	3088	4756	4044	5546	3305	5343	3066	4689	4509	3456	1616	1068	1634	51606
South Dakota			25	29	69	232	91	234	165	275	166	184	54	12	29	1565	701	1525	1453	1613	1304	2004	1501	2249	1270	1882	1805	1680	869	610	722	21188
Tennessee			19	51	200	523	310	811	504	668	277	302	205	74	151	4095	3002	5182	4784	8096	6765	10715	6790	9847	4776	7064	7131	5194	2532	1568	2043	85489
Texas			104	134	602	1317	721	2155	1503	1560	760	798	510	116	414	10694	9460	15611	17378	30655	18926	26880	16658	24191	13000	17398	18269	14199	6614	4178	5849	239266
Utah			11	19	102	228	107	385	299	325	205	164	98	42	108	2093	1132	1605	1566	2632	1665	2362	1250	2066	1374	1741	1836	1704	765	536	904	23138
Vermont			6	11	47	91	78	140	81	88	40	51	35	7	44	719	735	959	827	1183	1059	1358	1049	1209	560	699	548	373	230	130	279	11198
Virginia			43	68	498	889	470	1131	666	849	403	445	237	74	219	5992	5456	8583	7958	12140	10074	12487	8169	10234	5779	8380	7944	6614	2984	1812	2421	111035
Washington			40	75	359	913	433	1241	897	1594	852	933	760	228	766	9091	2147	4104	3837	6869	6112	7989	5432	8196	5093	7309	8011	7240	3992	3227	7498	87056
West Virginia			28	88	365	402	291	695	453	479	244	279	153	35	135	3647	2356	3070	2696	5840	5587	6179	3959	5188	2924	4378	3836	3417	1634	1047	1491	53602
Wisconsin			50	114	727	1174	506	1315	668	925	589	548	282	68	230	7196	4670	7267	6564	10657	8022	11268	6755	10421	5707	8700	7248	6009	2638	1666	3074	100666
Wyoming			5	8	49	135	59	121	101	134	91	93	36	15	43	890	580	705	734	977	689	936	608	976	543	738	772	647	308	190	355	9758
TOTAL			2519	4530	25079	47185	25856	65764	36680	45352	24338	25062	16177	4759	16305	339606	257032	384279	366762	604019	466847	584374	364631	503649	271224	386640	362116	291689	138074	89475	150558	5221369

* Including those unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1960.

For State Totals and Summaries of Car and Truck Registrations by Makes, by Model Year, see page 103

CAR REGISTRATIONS BY MAKES, STATES, AND MODEL YEAR—*continued*

STATE	PONTIAC																STUDEBAKER													
	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	Earlier*	Total	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	Earlier*	Total
Alabama	3150	4756	2749	4383	6019	8783	3819	5932	3855	4309	3907	1603	921	462	568	55216	946	1173	411	481	793	1387	691	1945	2211	2535	2801	674	503	214	129	16894
Alaska	150	189	118	164	263	344	112	192	116	147	97	48	28	16	24	2008	65	199	57	47	113	141	98	103	105	114	95	35	23	7	12	1214
Arizona	1405	2655	1390	2263	2731	3455	1490	2285	1544	1863	1830	958	542	318	528	25257	407	868	246	533	643	984	484	1075	1151	1274	1680	504	518	274	229	10870
Arkansas	1693	2435	1438	2349	2782	3964	1746	2690	1607	1670	1590	648	362	211	321	25506	358	707	305	392	515	651	382	829	936	995	1121	272	211	88	68	7830
California	20137	30154	16957	28510	40271	50812	18459	32182	20863	26265	28251	15147	8077	4493	8372	348950	7248	12749	3143	5288	7137	13208	7906	16763	14057	18740	24429	9003	9061	5169	4694	158595
Colorado	2322	3529	2161	3069	3677	5401	2528	3782	2440	3038	3169	1355	522	531	853	38677	738	1235	445	684	747	1250	622	1245	1340	1785	2015	602	552	359	259	13878
Connecticut	3398	5208	3061	5434	6702	7869	4661	5677	3212	4096	3959	2042	1230	773	1125	58447	1737	2115	706	1031	1118	1913	1097	1922	1606	1821	1767	531	465	174	215	18218
Delaware	784	1018	683	1184	1299	1305	680	861	506	588	682	267	164	94	162	10287	200	299	113	146	210	249	176	307	318	331	410	122	76	26	29	3012
Dist. of Col.	1342	2178	1134	1854	2146	2749	1330	1357	676	739	867	337	161	94	144	17108	352	639	135	192	169	425	283	402	336	335	381	110	110	40	52	3961
Florida	7536	11065	6253	9196	11666	16424	7852	10112	5559	6584	6668	2912	1710	812	1065	105414	2750	3192	1249	1631	2103	3712	2571	4097	3591	3983	4593	1167	1050	487	294	36470
Georgia	5512	7419	3773	6144	7117	10531	4735	6488	3796	4551	3919	1641	1023	500	829	67978	1054	1786	581	719	1011	1760	1095	2092	2212	2597	2719	698	605	250	248	19407
Hawaii	255	335	194	314	379	531	281	331	388	556	488	294	203	99	128	4776	221	312	84	78	178	235	201	289	219	370	497	268	183	119	179	3433
Idaho	1111	1548	949	1268	1494	2000	738	1142	878	1052	1048	614	348	230	295	14715	343	620	258	343	438	664	347	582	808	1020	1216	468	381	233	169	7890
Illinois	21094	30787	14739	21454	24293	28803	15231	19738	8342	10833	11039	4819	2604	1316	2068	217160	5190	6780	3102	4251	4248	5994	3282	6682	5648	6065	6654	1849	1688	620	768	64821
Indiana	7627	12010	5684	10145	11632	16072	7257	10657	5626	6543	6074	2760	1633	932	1311	105963	4302	6656	2667	3701	3549	6033	3175	6470	4701	5841	6501	1303	1493	610	538	57540
Iowa	3502	5888	4126	4996	5081	7680	3918	5888	3152	4242	4467	2071	1209	675	1049	57944	986	2003	867	1006	1007	1819	1142	2106	2177	2724	3060	916	900	466	486	21665
Kansas	3107	4816	3245	4163	4363	8100	3414	4399	2818	3447	3528	1689	971	672	1002	49734	909	1481	648	819	921	1484	909	1627	1796	2279	2613	737	754	420	275	17672
Kentucky	3015	4253	2478	4230	4887	6679	3935	5979	3544	4185	4020	1858	1056	620	729	51468	771	965	324	548	606	1168	884	1888	1740	1863	1969	519	393	164	134	13936
Louisiana	4075	5829	3591	6199	7531	8516	4021	4789	2896	3006	3106	1351	700	350	448	58408	692	1292	574	753	916	1797	1098	1757	1707	1857	2357	515	416	172	139	16042
Maine	1094	1368	1039	1543	1841	2335	1444	1786	943	1140	1104	531	475	311	467	17421	484	655	319	466	494	610	417	634	524	521	503	138	133	41	66	6005
Maryland	3201	4792	3282	5539	6111	7172	4701	4979	2788	3311	3370	1475	870	495	808	52894	1077	1818	571	1081	1088	1590	1271	1746	1466	1531	1644	667	471	195	251	16467
Massachusetts	4524	7486	4395	7450	10365	13228	8584	11064	6347	8184	8780	4814	2872	1802	2072	101967	1487	2849	652	1065	1271	2309	1643	3729	3099	3495	4016	1024	939	294	319	28191
Michigan	19028	27879	11911	16891	17731	26934	12973	17921	8049	7982	6961	2912	2161	1143	1846	182302	2470	5130	1833	2627	2608	3793	2236	4738	3253	2984	2969	754	663	237	473	38768
Minnesota	5598	7097	5001	5730	6176	8332	4250	7197	4031	5146	5431	2260	1487	811	1320	69867	1965	2630	1281	1696	1658	2734	1486	2602	3035	3548	4511	1147	987	472	518	30270
Mississippi	1803	2411	1558	2635	3111	4321	1993	2920	1925	2125	1990	929	512	255	315	28803	441	703	315	515	522	767	420	948	1294	1364	1426	330	240	84	82	9451
Missouri	5673	7555	4654	7189	7148	12757	5516	7147	4144	5128	5346	2703	1395	811	1058	78224	1172	2506	962	1449	1505	2438	1270	2791	2474	2942	3535	989	901	405	305	25644
Montana	731	1336	815	1017	1273	1807	643	1001	640	841	850	399	247	141	202	11943	264	678	347	345	389	663	337	495	603	738	912	280	272	119	161	6603
Nebraska	1647	2462	1723	1939	2311	3408	1870	2788	1664	2324	2454	1098	695	458	561	27402	463	849	333	474	461	844	532	1043	1205	1528	1804	503	527	320	260	11146
Nevada	573	931	497	767	893	1111	423	700	460	552	599	304	193	114	185	8302	199	313	134	181	274	449	250	325	332	363	497	166	193	84	67	3827
New Hampshire	659	776	718	1225	1309	1736	1056	1253	658	708	638	277	203	110	243	11569	507	555	258	331	324	434	335	451	331	324	294	87	73	23	37	4364
New Jersey	10900	13891	8303	11025	13318	17539	11985	15150	8523	10937	10535	5884	2694	1469	1872	144025	3473	4229	1555	2325	2203	3525	2324	4743	3891	4463	4450	1200	1105	358	349	40193
New Mexico	715	1709	1042	1599	1830	2484	994	1266	736	850	783	335	148	115	163	14769	244	697	207	298	302	604	239	535	605	636	753	193	168	95	65	5641
New York	24089	34995	18983	27650	32514	41756	26861	31285	14806	17147	16222	8144	3820	1827	2732	302831	7918	11069	3814	5268	5008	6991	4697	8526	6640	6187	5757	1590	1301	416	615	75797
North Carolina	4711	6411	3637	5973	7105	11306	5199	7987	4774	5499	5186	2255	1328	868	945	73184	1279	1916	671	953	1127	1835	922	2270	2625	2894	3163	787	758	305	142	21647
North Dakota	654	1034	764	859	776	1119	528	949	570	773	675	343	247	133	161	9585	198	350	220	292	244	338	195	375	482	492	571	224	188	108	66	4343
Ohio	15275	25524	13430	22466	26773	34689	17977	23577	11871	13784	12162	5519	3422	1866	2470	230805	4164	8425	2345	3489	3334	5660	3143	6817	5587	5708	5462	1474	1332	477	573	57990
Oklahoma	2742	4083	3318	4041	4591	7673	3946	4535	2879	3189	3436	1494	861	568	902	48258	582	1165	617	707	770	1224	920	1495	1624	1711	2189	757	528	337	223	14849
Oregon	2142	3709	2195	3014	4126	5444	1656	3080	2183	2898	3064	1485	945	616	1113	37650	1036	1794	640	909	1111	1616	895	1383	1556	2190	2517	931	1127	597	431	18733
Pennsylvania	14040	19848	12705	21037	23896	31790	16716	21831	11580	14485	14120	6572	3601	2143	3682	218046	6081	8453	2228	5302	4701	6550	3223	7126	6419	6819	6762	2362	2007	857	1115	70005
Rhode Island	735	1036	575	1020	1470	2203	1321	1735	952	1213	1286	632	345	218	313	15054	304	482	122	180	330	590	379	714	521	532	577	169	167	49	71	5187
South Carolina	1885	2910	1793	2756	3457	5405	2462	3857	2461	2840	2546	1215	796	519	590	35492	400	1160	220	394	476	859	460	1316	1697	1900	2087	481	406	210	113	12179
South Dakota	724	1295	922	972	972	1459	754	1094	658	943	1045	545	367	188	260	12198	187	403	244	308	259	411	303	448	531	691	840	254	262	127	91	5359
Tennessee	3657	5352	2985	4968	5242	9294	4219	6311	3848	4393	4155	1739	1036	514	701	58412	943	1423	531	756	882	1545	826	1883	2060	2281	2577	597	480	203	157	17144
Texas	13224	19698	11570	17008	19946	30626	13925	15819	9476	10253	10228	4112	2087	1293	1723	180988	2997	5204	2054	2425	2974	5338	2949	5762	6427	7301	9466	1948	1740	870	655	58110
Utah	1313	1813	963	1543	1899	2712	1190	1828	1376	1686	1742	891	538	266	355	20115	282	361	143	263	271	428	242	574	707	953	1369	464	379	194	158	6788
Vermont	398	524	449	642	776	917	530	708	318	402	338	165	118	91	138	6514	274	263	220	220	165	262	170	188	153	187	147	70	38	16	16	2389
Virginia	4340	6442	4218	6817	7494	8975	4773	6107	3340	3948	3958	1689	951	569	715	64336	1420	1904	750	1087	1124	2065	1162	2007	2000	2174	2205	612	597	203	192	19502
Washington	2028	4386	2409	4029	5146	7514	2976	5070	3541	5009	5695	3227	2133	1583	2793	57539	741	1732	709	1021	1205	2069	1327	2442	2755	4204	5073	2056	2346	1367	1174	30221
West Virginia	1722	2586	1658	3186	3244	4022	2106	3110	1913	2337	2238	1065	586	348	379	30498	631	1002	419	782	695	1010	512	897	905	1094	1075	307	270	104	122	9835
Wisconsin	7101	8886	5255	7020	7567	10430	5635	8257	4367	5519	5512	2627	1394	779	1282	81631	1748	2200	1121	1591	1542	2261	1285	3135	2967	3430	3646	1044	759	326	337	27392
Wyoming	550	885	522	708	733	999	435	635	426	466	441	216	109	78	121	7324	173	285	76	117	120	207	94	204	232	255	314	130	89	63	45	2404
TOTAL	248691	367182	208012	317587	375477	511515	255848	347428	194063	233706	231599	110250	62400	35698	53508	3552964	74873	120254	41826	61570	65859	106893	62907	124523	114659	131969	149989	44028	40828	19448	18166	1177792

* Including those unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1960.

For State Totals and Summaries of Car and Truck Registrations by Makes, by Model Year, see page 103

CAR REGISTRATIONS BY MAKES, STATES, AND MODEL YEAR—*continued*

STATE	COMET		EDSEL					RAMBLER						WILLYS														
	1960	Total	1960	1959	1958	Earlier*	Total	1960	1959	1958	1957	Earlier*	Total	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	Earlier*	Total
Alabama	559	559	33	676	712	2	1423	3217	3723	1430	300	5	8675	86	122	81	60	108	120	162	724	656	585	585	529	823	482	749	5872
Alaska	6	6	1	45	98	.....	144	202	416	198	137	1	954	23	49	23	29	61	96	59	163	173	164	90	64	97	70	209	1370
Arizona	183	183	22	310	619	16	967	2001	2248	1189	739	2	6179	95	143	69	80	102	150	203	398	306	281	295	228	258	164	347	3119
Arkansas	264	264	22	269	314	3	608	1308	1929	775	271	6	4289	33	70	51	58	74	96	89	279	280	314	314	362	556	329	305	3210
California	5943	5943	224	3342	6260	2	9828	28665	38374	13667	7269	1	87976	379	495	214	407	854	1464	1541	4574	3652	2420	2330	1720	2393	2284	4359	29086
Colorado	496	496	34	475	773	.....	1282	2958	4134	2279	1158	2	10528	632	830	513	482	594	790	646	1072	825	1249	956	995	2092	1549	1631	14856
Connecticut	872	872	42	413	792	4	1251	5526	6967	3051	1685	11	17240	227	308	221	236	190	246	252	1001	543	599	656	420	498	296	516	6209
Delaware	104	104	4	124	156	1	285	698	739	325	67	2	1831	11	19	4	9	15	17	37	96	81	51	71	45	31	39	28	554
Dist. of Col.	233	233	11	144	168	8	331	1586	1917	666	307	.....	4476	27	32	22	25	19	35	44	108	87	73	58	51	45	29	16	671
Florida	1992	1992	76	1298	1820	2	3196	9504	11123	5120	2478	8	28233	749	727	525	727	712	828	847	2336	1712	1824	1835	1375	1682	1232	1549	18660
Georgia	522	522	40	822	684	36	1582	3239	4181	1801	544	31	9796	48	65	33	45	33	95	117	598	455	394	334	324	230	141	201	3113
Hawaii	63	63	1	34	72	33	140	338	574	305	169	6	1392	110	201	65	77	75	82	87	153	176	202	130	123	295	173	2339	4288
Idaho	167	167	13	180	273	1	467	1463	1715	1025	521	15	4739	130	217	119	190	231	322	264	517	478	527	338	334	678	454	459	5258
Illinois	3372	3372	287	3091	3119	54	6551	17603	22879	11449	5748	66	57745	535	453	316	298	309	588	686	1984	1171	1204	1221	1237	2171	1479	1649	15301
Indiana	1495	1495	109	1578	1985	50	3722	6651	9438	4025	1621	20	21755	128	131	72	78	90	245	245	981	617	522	648	538	739	535	638	6207
Iowa	665	665	45	736	1038	6	1825	4266	5867	2688	1179	30	14030	104	91	48	51	48	109	148	467	335	284	301	392	980	841	661	4860
Kansas	541	541	44	571	876	5	1496	3423	4211	2106	832	30	10602	84	128	84	60	63	116	150	399	378	374	334	353	594	470	470	4057
Kentucky	610	610	32	686	793	22	1533	3018	2997	1088	406	22	7531	154	165	139	202	196	223	170	659	506	535	598	660	1197	790	623	6817
Louisiana	504	504	46	608	764	9	1427	2632	2823	1038	364	14	6871	111	120	99	119	146	163	161	460	418	516	488	520	735	556	424	5036
Maine	260	260	15	245	239	4	503	1863	2093	1024	742	8	5730	176	274	184	241	234	270	219	559	279	402	227	193	393	332	449	4432
Maryland	800	800	32	442	696	5	1175	3951	5124	1898	784	4	11761	140	178	82	118	188	227	370	512	470	410	319	279	256	236	285	4050
Massachusetts	1352	1352	.....	851	930	7	1788	8249	13142	6035	3241	13	30680	75	198	329	428	332	414	545	1498	832	917	807	624	661	441	706	8807
Michigan	5056	5056	292	4280	4285	139	8996	12944	19347	9036	4344	173	45844	413	594	307	391	486	551	524	1465	860	834	885	750	1459	1423	1981	12923
Minnesota	973	973	80	1097	1338	.....	2495	6101	8127	4008	2053	10	20299	110	99	59	102	158	178	241	711	362	419	371	370	860	642	736	5418
Mississippi	178	178	10	223	296	6	535	1179	1384	598	189	9	3359	43	40	23	68	60	71	77	302	301	326	279	297	425	256	319	2887
Missouri	703	703	66	837	1099	.....	2002	6389	7402	2675	986	6	17458	199	220	130	97	88	171	210	616	507	500	661	708	1005	887	779	6778
Montana	183	183	15	244	333	4	596	984	1711	1006	563	2	4266	176	229	176	234	306	299	258	493	415	494	374	317	729	613	500	5613
Nebraska	256	256	21	308	387	4	720	2006	2396	1095	442	10	5949	103	74	55	36	29	80	91	269	286	244	185	267	448	353	277	2797
Nevada	105	105	13	129	232	1	375	574	763	218	88	.....	1643	45	70	41	42	60	97	73	167	132	123	95	67	92	79	143	1326
New Hampshire	239	239	3	154	143	26	326	1083	1815	1110	623	5	4636	76	183	133	141	168	161	140	300	164	215	158	104	130	107	176	2356
New Jersey	2566	2566	74	1086	1999	2	3161	12832	11953	5299	2157	8	32249	322	383	218	202	193	309	480	1965	1232	1322	1243	963	763	596	827	11018
New Mexico	77	77	19	224	377	6	626	834	1295	647	288	3	3067	119	198	131	116	167	236	140	306	224	314	269	246	380	317	479	3642
New York	4283	4283	200	2561	4006	52	6819	28166	31499	13870	6696	168	80397	1142	1225	747	822	735	1049	1288	3940	2092	2118	1878	1298	1448	999	1701	22482
North Carolina	879	879	51	865	824	2	1742	3484	3999	1731	893	7	10114	58	79	33	33	26	161	205	976	856	386	448	402	251	193	80	4217
North Dakota	182	182	14	313	309	.....	636	733	1314	773	332	.....	3152	30	31	11	21	34	38	39	106	87	124	110	119	338	228	201	1517
Ohio	3976	3976	234	3232	3739	54	7259	13640	20294	7577	3916	32	45459	708	632	374	488	529	948	756	2797	1732	1691	1462	1308	1932	1462	1905	18724
Oklahoma	494	494	36	282	489	116	923	2936	2843	1907	774	34	8494	24	39	25	24	17	65	67	236	265	204	290	305	298	235	166	2260
Oregon	427	427	33	467	853	.....	1353	4036	5683	2947	1375	2	14043	9	179	144	200	269	378	383	782	726	691	465	254	219	262	159	5120
Pennsylvania	3240	3240	211	2447	3377	17	6052	19689	23274	8619	4759	108	56449	794	1670	1110	852	1003	1361	1021	2841	2044	2208	2670	1487	2148	1730	3567	26506
Rhode Island	203	203	12	71	208	1	292	1763	2074	1070	416	1	5324	31	31	20	32	26	46	64	185	138	163	148	111	112	67	120	1294
South Carolina	142	142	14	321	375	.....	710	1697	2209	921	216	7	5050	51	40	12	20	18	57	100	484	384	216	268	259	224	152	130	2415
South Dakota	123	123	22	287	218	5	532	887	1272	817	423	4	3403	22	32	19	22	24	70	83	145	115	135	94	78	83	52	27	1001
Tennessee	506	506	40	797	880	15	1732	3164	4181	1791	650	18	9804	116	140	92	100	108	184	168	636	469	527	572	574	864	512	492	5557
Texas	1811	1811	188	1544	2315	64	4111	9259	12098	3818	2047	36	27258	285	411	340	324	361	455	470	1212	1231	1388	1496	1435	1969	1379	1394	14150
Utah	288	288	16	205	381	.....	602	1572	2069	803	400	.....	4844	124	122	85	91	133	254	238	379	380	308	245	236	472	347	521	3935
Vermont	100	100	8	77	64	2	151	679	991	557	305	1	2533	173	198	168	191	238	205	171	393	201	293	200	122	278	206	281	3318
Virginia	926	926	54	623	1007	8	1692	3909	4615	2120	1060	10	11714	274	299	201	199	227	299	322	712	615	566	519	532	739	577	728	6809
Washington	569	569	.....	664	965	3	1632	3039	5946	2765	1961	18	13729	55	118	127	179	264	405	408	959	834	842	733	616	952	828	1587	8907
West Virginia	337	337	24	460	750	.....	1234	1922	2279	843	520	.....	5564	223	245	115	160	168	224	180	629	458	428	470	335	208	136	45	4024
Wisconsin	1305	1305	55	830	1306	.....	2191	13502	13790	7875	4030	4	39201	324	229	109	126	160	241	359	818	540	456	416	408	652	455	474	5767
Wyoming	119	119	11	128	210	4	353	654	1029	385	142	2	2212	132	242	129	182	198	285	200	325	235	342	265	215	420	371	263	3804
TOTAL	51249	51249	2929	41896	55946	801	101372	272018	344263	150063	73210	973	840527	10268	13068	8427	9515	10927	15574	15798	44687	32315	31724	30204	25549	37302	28388	38654	352398

* Including those unidentified as to model year.

Data from the Reuben H. Donnelley Corp. are as of July 1, 1960.

For State Totals and Summaries of Car and Truck Registrations by Makes, by Model Year, see page 103

Passenger Car Registrations by States*

As of July 1, 1960

STATE	CARS	STATE	CARS	STATE	CARS
Alabama	947,015	Louisiana	863,582	Oklahoma	786,603
Alaska	45,411	Maine	282,603	Oregon	638,457
Arizona	433,751	Maryland	828,695	Pennsylvania	3,513,828
Arkansas	445,798	Massachusetts	1,549,616	Rhode Island	266,203
California	6,135,457	Michigan	2,781,139	South Carolina	658,730
Colorado	674,591	Minnesota	1,209,771	South Dakota	231,580
Connecticut	872,164	Mississippi	475,099	Tennessee	955,576
Delaware	151,318	Missouri	1,335,787	Texas	3,068,347
District of Columbia	250,254	Montana	233,452	Utah	296,508
Florida	1,849,546	Nebraska	505,812	Vermont	116,940
Georgia	1,077,514	Nevada	125,878	Virginia	1,060,410
Hawaii	177,063	New Hampshire	188,821	Washington	998,325
Idaho	240,937	New Jersey	2,042,194	West Virginia	514,148
Illinois	3,224,271	New Mexico	247,352	Wisconsin	1,293,211
Indiana	1,607,063	New York	4,345,101	Wyoming	126,083
Iowa	992,659	North Carolina	1,231,895		
Kansas	833,039	North Dakota	214,104	Total	57,102,676
Kentucky	848,565	Ohio	3,310,470		

Passenger Car Registrations, by Makes and by Model Year†

As of July 1, 1960

Make	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	Earlier*	Total
Buick	165,414	268,629	228,416	378,080	524,673	679,108	396,220	405,186	227,799	250,982	316,617	97,833	45,615	32,154	64,652	4,081,378
Cadillac	92,409	129,995	110,701	133,500	138,587	125,975	84,734	91,930	72,895	82,458	73,646	53,586	22,279	17,403	23,866	1,253,964
Chevrolet	1,013,031	1,376,261	1,176,107	1,432,051	1,468,554	1,604,968	1,075,713	1,210,408	700,089	922,668	899,785	530,307	287,752	196,818	358,985	14,253,495
Chrysler	59,494	75,905	71,101	139,059	120,298	144,143	89,552	135,118	65,242	87,726	105,989	71,042	38,665	21,884	33,141	1,258,359
Comet	51,249															51,249
De Soto	16,739	42,717	45,866	108,902	101,126	105,589	66,101	102,198	60,034	64,462	80,391	53,038	29,429	16,750	23,233	916,575
Dodge	223,432	145,336	127,637	267,650	220,639	256,197	143,633	240,055	168,386	179,331	221,216	151,080	78,841	56,135	79,177	2,558,745
Edsel	2,929	41,696	55,946												801	101,372
Ford	936,818	1,377,704	913,536	1,553,243	1,338,766	1,314,185	1,045,615	1,065,543	510,208	610,981	631,655	342,206	64,024	81,580	309,242	12,095,306
Hudson				4,094	21,886	34,783	36,595	43,871	35,321	49,741	34,232	28,781	11,288	5,571	9,046	315,209
Lincoln	15,973	23,067	26,033	38,448	46,393	24,649	31,970	33,606	19,582	16,536	12,114	13,953	1,642	1,568	3,833	309,367
Mercury	103,753	146,618	126,660	266,333	300,349	299,023	225,539	256,317	123,562	167,390	137,140	74,497	9,519	12,754	20,385	2,271,839
Nash				16,179	72,079	94,342	71,341	92,239	91,289	100,479	43,079	20,491	19,166	9,725	12,130	642,539
Oldsmobile	221,261	361,952	278,990	361,739	446,853	537,839	320,029	275,500	146,293	151,079	183,353	88,937	35,790	22,261	38,990	3,470,868
Packard			2,519	4,530	25,079	47,185	25,856	65,764	36,680	45,352	24,338	25,062	16,177	4,759	16,305	339,606
Plymouth	257,032	384,279	366,762	604,019	466,847	584,374	364,631	503,649	271,224	386,640	362,116	291,689	138,074	89,475	150,558	5,221,369
Pontiac	248,691	367,182	208,012	317,587	375,477	511,515	255,848	347,428	194,063	233,706	231,599	110,250	62,400	35,698	53,508	3,552,964
Rambler	272,018	344,263	150,063	73,210											973	840,527
Studebaker	74,873	120,254	41,826	61,570	65,859	106,893	62,907	124,523	114,659	131,969	149,989	44,028	40,828	19,448	18,166	1,177,792
Willys	10,268	13,068	8,427	9,515	10,927	15,574	15,798	44,687	32,315	31,724	30,704	25,549	37,302	28,386	38,654	352,398
All Others	366,894	546,562	349,758	196,061	96,176	53,102	39,497	63,366	55,102	84,629	21,454	19,591	20,448	8,215	116,902	2,037,757
Totals	4,132,278	5,765,488	4,288,360	5,965,770	5,810,568	6,539,442	4,351,579	5,103,388	2,924,743	3,597,853	3,558,917	2,011,920	959,239	660,584	1,372,547	57,102,676

* Includes those unidentified as to model year.

Truck Registrations, by Makes and by Model Year†

As of July 1, 1960

Make	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948	1947	Earlier*	Total
Chevrolet	189,436	291,071	220,385	255,931	207,990	359,709	238,717	262,484	227,951	311,291	317,870	251,051	191,617	110,308	324,633	3,760,444
Diamond T	1,870	2,718	2,609	3,016	3,198	2,913	2,048	2,392	2,161	2,555	2,462	2,140	3,961	3,011	5,728	42,782
Divco	2,271	2,679	2,175	2,452	3,153	3,231	2,496	2,604	2,698	3,523	3,775	2,710	3,875	3,333	5,028	46,003
Dodge-Plymouth	28,178	42,770	33,560	48,932	52,354	57,195	48,312	73,624	81,501	69,917	81,792	76,240	66,940	53,835	120,637	935,787
Ford	179,940	273,269	182,658	215,340	317,845	242,520	187,577	215,981	162,270	209,996	241,548	144,102	143,435	85,193	257,413	3,059,087
GMC	41,584	74,795	42,869	56,059	80,342	64,267	46,616	76,034	60,576	69,359	77,677	49,018	43,878	21,549	49,745	854,368
International	66,292	93,942	80,548	85,209	93,973	93,449	73,315	71,466	82,339	77,610	63,085	61,465	65,644	54,718	106,906	1,169,961
Mack	6,489	12,608	10,569	12,008	11,328	9,222	5,445	4,826	4,807	6,234	5,151	3,341	4,221	4,909	8,646	109,804
Studebaker	2,399	6,775	4,609	6,259	7,204	11,918	4,730	22,251	21,916	25,049	25,895	46,539	13,068	17,148	14,315	230,075
White	8,089	14,173	10,792	13,142	14,586	13,202	11,140	12,129	10,069	11,036	9,099	6,081	9,824	8,580	16,984	168,926
Willys	11,627	13,785	11,120	11,787	9,975	10,587	7,580	13,384	10,689	19,054	14,307	15,162	28,244	12,670	19,422	209,393
All Others	22,601	31,323	23,591	15,998	12,307	9,827	7,622	8,835	8,515	9,891	8,892	7,102	8,505	9,021	32,299	216,329
Totals	560,776	859,908	625,485	726,133	814,255	878,040	635,598	766,010	675,492	815,515	851,553	664,951	583,212	384,275	961,756	10,802,959

* Includes those unidentified as to model year.
† Based on data from Reuben H. Donnelley Corp.

For 1960 Motor Vehicle Registrations in the 115 Leading Counties, turn to page 259

AUTOMOTIVE EXPORTS

U. S. Exports of Automotive Products, 1958-1960

Vehicles, Engines, Parts and Equipment

1960 Data Compiled by Automobile Manufacturers Association, from records of Bureau of the Census
All Other Years by Automotive Industries, from records of the Bureau of the Census

	1960		1959		1958	
VEHICLES	Number	Value	Number	Value	Number	Value
Passenger Cars and Chassis, New	117,126	$234,841,805	104,384	$220,172,390	121,751	$258,324,903
Passenger Cars and Chassis, Used	8,668	7,000,302	8,441	6,411,073	10,238	7,939,279
Trucks, Buses, and Chassis, New	202,937	362,415,812	162,082	322,146,678	146,400	393,903,889
Trucks, Buses, and Chassis, Used	3,120	5,669,751	3,857	7,458,499	4,005	5,551,904
Special Purpose Vehicles, New	2,445	15,746,536	1,228	9,023,076	1,338	11,083,558
Trailers, Truck or Truck Tractor	5,753	13,356,323	7,417	16,839,116	7,584	15,503,943
Motorcycles	895	967,740	895	939,949	1,073	1,094,811
Total—New and Used Vehicles	340,944	$639,998,269	288,304	$582,990,781	292,389	$593,402,287
ENGINES						
Diesel, Truck and Bus, for Assembly			147	$456,525	71	$124,047
Gasoline, Truck and Bus, for Assembly	13,665	$4,923,269	7,125	3,191,340	2,945	1,746,983
Passenger Car, for Assembly			13,499	2,139,721	5,241	798,999
Diesel for Replacement			1,450	456,525	1,646	3,705,579
Gasoline, for Replacement	23,080	9,883,640	22,546	4,909,923	21,925	4,939,244
Total—Engines	36,745	$14,806,909	44,767	$11,154,034	31,828	$11,314,852
PARTS AND ACCESSORIES						
Motorcycle Parts	.....	$453,933	.....	$364,843	.....	$372,873
Trailer Parts	.....	4,839,134	.....	6,077,060	.....	5,062,223
Bodies, Truck, Bus and Car	4,154	3,010,497	4,406	4,303,688	3,375	3,349,810
Springs, Leaf and Leaves; lb.	.....	1,426,984	7,355,106	1,608,779	12,073,773	2,606,063
Shock Absorbers and Parts	.....	4,390,013	.....	4,452,218	.....	4,398,255
Parts for Assembly	.....	242,349,493	.....	226,484,258	.....	195,639,371
Parts for Replacement	.....	278,337,811	.....	274,159,864	.....	246,673,525
Heaters, Air Conditioners, and Parts	.....	1,243,940	.....	1,176,280	.....	1,144,796
Accessories and Parts, n.e.c.	.....	6,265,455	.....	6,873,969	.....	6,446,048
Auto Radio Receiving Sets	59,385	1,395,366	64,057	1,781,577	53,414	1,889,220
Spark Plugs	27,995,652	8,753,925	28,121,537	8,505,305	23,068,917	7,141,002
Starting, Lighting, and Ignition Equipment	.....	33,843,785	.....	33,933,306	.....	29,597,014
Batteries, Storage, 6 and 12 volt	180,213	2,616,456	209,504	2,882,999	221,580	3,281,251
Clutch Facings, Asbestos; number	.....	5,637,897	1,427,059	1,139,154	1,340,622	1,091,636
Brake Lining, Asbestos; ft.	.....		1,553,704	651,583	1,748,451	715,340
Brake Lining, Asbestos; lb.	.....		5,389,774	4,022,404	4,448,502	3,897,118
Fan Belts, Belting, Automotive	.....	1,294,992	955,522	1,575,222	920,826	1,442,387
Total—Parts and Accessories	.....	$595,859,681	.....	$579,992,509	.....	$514,747,932
EQUIPMENT						
Service Appliances and Parts	.....	$16,621,829	.....	$15,180,300	.....	$13,902,296
Pumps, Measuring and Dispensing	28,209	7,352,147	27,353	6,572,768	29,972	6,403,332
Lubrication Equipment and Parts	.....	6,996,725	.....	6,532,286	.....	6,264,144
Total—Equipment	.....	$30,970,701	.....	$28,285,354	.....	$26,569,772
TIRES AND TUBES						
Tires and Tire Casings, Truck and Bus	.....	$68,250,057	622,331	$38,240,356	750,027	$48,505,229
Tires and Tire Casings, Passenger Car			481,901	7,429,499	479,069	7,951,410
Casings, Off-Road Vehicles, excluding Tractors			146,545	21,068,627	134,118	18,863,529
Tires and Tire Casings, n.e.c.	.....		101,337	991,759	87,909	1,214,863
Inner Tubes, New and Used	.....	4,422,020	911,201	3,356,506	998,422	3,745,466
Camelback; lb.	.....		6,597,177	2,012,520	6,111,426	1,868,037
Tire Sundries and Repair Materials; lb.	.....	6,749,767	6,447,470	4,801,933	6,079,240	4,785,722
Total—Tires and Tubes	.....	$79,421,844	.....	$77,893,200	.....	$86,934,256
Total—Automotive Products	.....	$1,361,057,404	.....	$1,280,315,878	.....	$1,232,969,099
Military Autos, Trucks, etc.	.....	$77,243,088	.....	$113,386,591	.....	$216,943,636

1960 U. S. Automotive Imports

As reported by the Automobile Manufacturers Association from the records of the Bureau of the Census

	Truck and Bus Chassis		New Passenger Cars		Used Passenger Cars		Value of Auto Parts	Total Value of Imports
Exporting Country	Number	Value	Number	Value	Number	Value		
Canada	134	$249,318	389	$794,696	193	$147,011	$9,681,684	$10,872,709
Sweden	72	314,501	21,062	26,621,399	193	243,277	1,160,488	$8,339,665
United Kingdom	793	1,371,961	134,537	175,923,502	2,219	2,987,173	18,018,275	198,300,911
Netherlands	.....	.....	783	762,686	16	31,177	194,089	987,952
Belgium	1	5,946	874	1,008,385	22	28,105	40,336	1,082,872
France	2,653	2,737,159	74,503	63,971,748	914	837,369	4,617,435	72,183,711
West Germany	20,053	23,265,864	187,381	211,585,508	22,686	25,054,503	17,715,423	277,621,298
Czechoslovakia	2	8,323	880	770,830	.....	.....	40,099	819,252
Switzerland	1	3,465	4	16,055	7	9,888	153,931	183,339
Italy	9	14,071	20,832	28,275,518	114	289,925	2,099,327	30,678,841
Japan	72	155,579	2,035	2,039,413	11	6,961	904,395	3,106,348
Australia	.....	.....	29	45,979	.....	.....	72,695	118,674
Austria	3	10,885	14	17,157	.....	.....	27,650	55,692
Israel	41	43,052	75	88,748	.....	.....	20,121	151,921
Ireland	.....	.....	1,053	1,045,536	.....	.....	.....	1,045,536
All Other Countries	4	6,883	23	42,975	23	30,448	229,649	309,955
Total—Automotive Imports	23,838	$28,207,007	444,474	$513,010,135	26,398	$29,665,837	$54,975,697	$625,858,676

South America Boosts Lead as Importer of U. S. Motor Vehicles

Now takes 41 per cent of U. S. Motor Vehicle Exports

1960 U. S. Exports of Motor Vehicles to Continents of the World

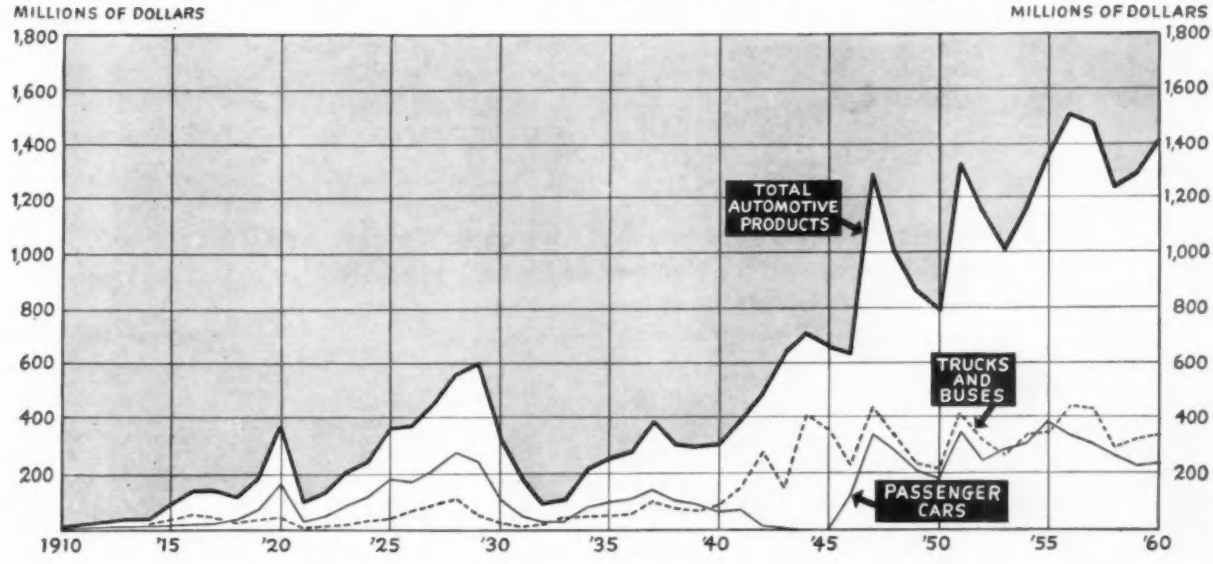
In Units and Their Value

All Values are in Thousands of Dollars

Original data compiled by the Automobile Manufacturers Association from records of the Bureau of the Census

Type of Vehicle	EUROPE		ASIA		AFRICA		NORTH AMERICA		SOUTH AMERICA		OCEANIA		WORLD TOTAL	
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
Passenger Cars, New	29,449	$53,365	12,587	$27,920	11,257	$19,284	42,218	$92,391	19,576	$37,895	2,039	$3,986	117,126	$234,841
Passenger Cars, Used	496	810	413	687	75	159	6,203	2,982	1,413	2,231	68	141	8,668	7,010
Trucks—Gasoline														
6,000 lb. and under	3,998	6,855	19,727	26,772	6,996	10,643	11,703	17,183	50,750	50,859	868	909	94,042	113,221
6,001-10,000 lb.	1,278	2,640	5,189	9,959	1,935	3,613	5,782	9,712	10,708	15,148	6	15	24,898	41,087
10,001-14,000 lb.	735	1,343	468	1,392	762	1,539	179	585	230	644	7	23	2,381	5,526
14,001-16,000 lb.	558	1,006	2,343	5,076	390	939	962	2,002	3,504	6,183	2	5	7,759	15,211
16,001-19,500 lb.	2,474	6,287	4,554	11,915	1,122	2,521	5,476	12,857	45,363	50,748	2	6	58,991	84,334
19,501-26,000 lb.	778	2,501	1,831	7,272	194	884	1,592	4,918	2,834	12,686	438	1,906	7,667	30,167
26,001-33,000 lb.	11	103	120	1,030	16	138	273	1,719	807	4,885	257	1,437	1,484	9,312
33,001 lb. and over	37	442	60	707	30	528	625	4,737	151	1,708	111	776	1,014	8,898
Total—Gasoline	9,869	$21,177	34,292	$64,123	11,445	$20,805	26,592	$53,713	114,347	$142,861	1,691	$5,077	198,236	$307,756
Trucks—Diesel														
19,500 lb. and under	251	673	83	739	63	386	94	782	21	131	4	21	516	2,732
19,501 lb. and over	166	2,206	256	3,834	138	3,164	1,071	12,468	198	3,332	107	1,270	1,936	26,274
Total—Diesel	417	$2,879	339	$4,573	201	$3,550	1,165	$13,250	219	$3,463	111	$1,291	2,452	$29,006
Total—All Trucks	10,286	$24,056	34,631	$68,696	11,646	$24,355	27,757	$66,963	114,566	$146,324	1,802	$6,368	200,688	$336,762
Buses—Gasoline	264	720	676	1,883	32	87	2,528	8,851	2,657	7,521	5	26	6,162	19,088
Buses—Diesel	None	None	39	129	2	8	281	6,290	13	72	None	None	335	6,499
Total—Buses	264	$720	715	$2,012	34	$95	2,809	$15,141	2,670	$7,593	5	$26	6,497	$25,587
Special Purpose, New	143	$1,089	581	$2,886	273	$2,690	431	$3,571	1,001	$5,422	17	$100	2,446	$15,758
Special Purpose, Used	29	78	63	207	39	170	2,838	4,669	130	509	21	36	3,120	5,669
Total	172	$1,167	644	$3,093	312	$2,860	3,269	$8,240	1,131	$5,931	38	$136	5,566	$21,427
Total—All Vehicles—1960	40,667	$80,118	48,990	$102,408	23,321	$16,753	82,256	$185,717	139,356	$199,974	3,952	$10,657	338,545	$625,627
Total—All Vehicles—1959	23,580	$52,142	43,915	$101,346	16,644	$31,350	88,231	$197,899	105,099	$174,752	2,428	$6,436	279,897	$563,925
Per Cent of Total—1960	12.01	12.81	14.47	16.37	6.89	7.47	24.30	29.68	41.16	31.97	1.17	1.70	100.00	100.00
Per Cent of Total—1959	8.42	9.24	15.69	17.97	5.95	5.56	31.52	35.09	37.55	31.00	.87	1.14	100.00	100.00

TOTAL 1960 AUTOMOTIVE EXPORTS VALUED AT $1,361,057,400



AIRCRAFT AND PARTS

Sales of Manufacturers of Complete Aircraft, Aircraft Engines, Propellers, and Parts

(In Thousands of Dollars)

Industry Division, Bureau of the Census

Year	Aircraft and Parts	Aircraft Engines and Parts	Aircraft Propellers and Parts	Other Products and Services[1]	Total All Products
1949	$1,098,000	$508,000	$62,000	$113,000	$1,781,000
1950	1,416,000	583,000	75,000	200,000	2,274,000
1951	1,883,000	879,000	110,000	584,000	3,456,000
1952	3,897,000	1,609,000	148,000	843,000	6,497,000
1953	5,179,000	2,378,000	203,000	751,000	8,511,000
1954	5,226,000	2,062,000	183,000	834,000	8,305,000
1955	5,164,000	1,933,000	134,000	1,239,000	8,470,000
1956	5,554,000	2,035,000	136,000	1,771,000	9,496,000
1957	6,772,000	2,527,000	183,000	2,283,000	11,765,000
1958	6,319,000	2,179,000	163,000	2,809,000	11,470,000
1959	5,458,000	1,676,000	102,000	4,019,000	11,255,000
1960*	3,871,000	980,000	75,000	3,235,000	8,161,000

* First nine months only.
[1] Includes missiles, conversions, modifications, and all other products and services not covered under the first three categories as long as they were produced or performed by manufacturers of complete aircraft, aircraft engines, or propellers.

Aircraft Shipments

Industry Div., Bureau of the Census

Year	Total	Civil	Military*
1939	5,856	3,661	2,195
1940	12,813	6,785	6,028
1941	26,289	6,844	19,445
1942	47,675	N.P.	47,675
1943	85,433	N.P.	85,433
1944	95,272	N.P.	95,272
1945	48,912	2,047	46,865
1946	36,418	35,001	1,417
1947	17,739	15,617	2,122
1948	9,838	7,302	2,536
1949	6,137	3,545	2,592
1950	6,293	3,520	2,773
1951	7,923	2,477	5,446
1952	12,811	3,509	9,302
1953	14,760	4,134	10,626
1954	12,129	3,389	8,740
1955	12,852	4,820	8,032
1956	13,319	7,205	6,114
1957	12,346	6,745	5,619
1958	10,882	6,882	4,000[1]
1959	10,242[1]	8,242	2,000[1]
1960	N.A.	8,316	N.A.

* Aerospace Industries Association of America.
N.P.—No production for civil use. [1] Estimated.

Shipments of Complete Civil Aircraft and Parts

In Units and Their Value

As reported by the Industry Division, Bureau of the Census

Month	Complete Aircraft 1960 Number	Complete Aircraft 1960 Value	Complete Aircraft 1959 Number	Complete Aircraft 1959 Value	Value of Aircraft Parts* 1960	Value of Aircraft Parts* 1959	Total Value Aircraft and Parts 1960	Total Value Aircraft and Parts 1959
January	747	$96,320,000	665	$49,590,000	$9,602,000	$4,874,000	$105,922,000	$54,464,000
February	855	112,721,000	619	49,805,000	11,696,000	6,731,000	124,417,000	56,536,000
March	867	90,299,000	736	34,014,000	8,279,000	6,743,000	98,578,000	40,757,000
April	768	127,183,000	745	68,142,000	8,137,000	7,140,000	135,320,000	75,282,000
May	802	131,262,000	759	81,212,000	10,468,000	6,468,000	141,730,000	87,680,000
June	694	109,704,000	779	65,098,000	8,788,000	8,230,000	118,492,000	73,328,000
July	539	119,965,000	630	88,444,000	8,766,000	7,950,000	128,731,000	96,394,000
August	420	97,334,000	647	95,280,000	9,156,000	6,650,000	106,690,000	101,930,000
September	427	108,410,000	432	75,950,000	10,196,000	7,752,000	118,606,000	83,702,000
October	618	81,002,000	739	103,646,000	9,945,000	10,218,000	90,947,000	113,864,000
November	630	88,068,000	705	76,911,000	11,607,000	8,578,000	99,675,000	85,489,000
December	769	82,199,000	786	111,545,000	12,852,000	8,089,000	95,051,000	119,634,000
Total	8,136	$1,244,667,000	8,242	$899,637,000	$119,492,000	$89,423,000	$1,364,159,000	$989,060,000

*—Only those parts produced in plants manufacturing complete aircraft.

Value of Net Sales— Complete Aircraft and Parts

(In Thousands of Dollars)

Industry Div., Bureau of the Census

Period	Type of Customer: U. S. Military	All Other	Total
9 Mos. 1960	$2,527,000	$1,344,000	$3,871,000
9 Mos. 1959	3,075,000	965,000	4,040,000
Years			
1959	$4,063,000	$1,395,000	$5,458,000
1958	5,305,000	1,014,000	6,319,000
1957	5,607,000	1,165,000	6,772,000
1956	4,740,000	814,000	5,554,000
1955	4,605,000	559,000	5,164,000
1954	4,626,000	600,000	5,226,000
1953	4,661,000	518,000	5,179,000
1952	6,495,000	501,000	6,996,000

Value of Net New Orders— Complete Aircraft and Parts

(In Thousands of Dollars)

Industry Div., Bureau of the Census

Period	Type of Customer: U. S. Military	All Other	Total
9 Mos. 1960	$2,512,000	$931,000	$3,443,000
9 Mos. 1959	2,303,000	660,000	2,963,000
Year			
1959	$3,087,000	$923,000	$4,010,000
1958	4,288,000	905,000	5,193,000
1957	3,207,000	1,057,000	4,264,000
1956	4,864,000	1,765,000	6,629,000
1955	3,454,000	1,744,000	5,198,000
1954	3,655,000	606,000	4,261,000
1953	5,134,000	427,000	5,561,000
1952	6,495,000	501,000	6,996,000

Shipments of Civil Aircraft by Airframe Weights and Their Value, and by Number of Places, 1952-1960

As reported by the Industry Division, Bureau of the Census

Year	Airframe Weights: Number Under 3,000 lb.	Number 3,000 lb. and over	Value Under 3,000 lb.	Value 3,000 lb. and over	Total Number	Total Value	Number of Places: 5 Places and Less	Over 5 Places	Total
1960	7,626	510	$136,847,000	$1,103,276,000	8,136	$1,240,123,000	7,448	688	8,136
1959	7,796	446	125,337,000	774,300,000	8,242	899,637,000	7,588	654	8,242
1958	6,522	360	100,861,000	399,679,000	6,882	500,540,000	6,367	515	6,882
1957	6,208	597	95,883,000	604,948,000	6,805	700,831,000	5,961	844	6,805
1956	6,778	427	98,364,000	355,792,000	7,205	454,156,000	6,505	700	7,205
1955	4,575	245	63,112,000	208,138,000	4,820	271,250,000	4,372	448	4,820
1954	3,098	291	41,402,000	254,336,000	3,389	295,738,000	2,982	407	3,389
1953	3,825	309	33,388,000	211,030,000	4,134	244,418,000	3,822	312	4,134
1952	3,057	452	23,852,000	173,299,000	3,509	197,151,000	3,056	453	3,509

For Aircraft Engine Shipments turn to page 161

1960 Registrations of Civil Aircraft

As reported by the Federal Aviation Agency

U. S. Civil Aircraft Registrations by States

As of January, 1960

State	Active	Total
Alabama	679	989
Alaska	1,208	2,010
Arizona	1,065	1,626
Arkansas	859	1,332
California	8,761	13,630
Colorado	1,033	1,516
Connecticut	536	813
Delaware	228	316
Dist. of Columbia	374	577
Florida	2,352	4,058
Georgia	965	1,446
Hawaii	109	197
Idaho	689	962
Illinois	3,791	5,489
Indiana	1,889	2,821
Iowa	1,626	2,115
Kansas	1,790	2,577
Kentucky	529	737
Louisiana	1,160	1,750
Maine	371	525
Maryland	624	959
Massachusetts	912	1,405
Michigan	2,728	3,982
Minnesota	2,036	2,785
Mississippi	718	1,128
Missouri	1,663	2,435
Montana	985	1,336
Nebraska	1,174	1,602
Nevada	356	549
New Hampshire	176	284
New Jersey	1,274	2,101
New Mexico	726	1,097
New York	3,334	5,040
North Carolina	1,171	1,763
North Dakota	675	942
Ohio	3,109	4,641
Oklahoma	1,511	2,141
Oregon	1,393	1,948
Pennsylvania	2,495	3,684
Rhode Island	132	194
South Carolina	408	581
South Dakota	779	1,072
Tennessee	816	1,203
Texas	6,187	8,859
Utah	442	642
Vermont	97	151
Virginia	863	1,305
Washington	1,737	2,640
West Virginia	368	530
Wisconsin	1,323	2,021
Wyoming	401	564
U. S. Total	70,627	105,090
Puerto Rico	66	111
Virgin Islands	2	7
Territorial Total	68	118
Other Countries	52	101
Grand Total	70,747	105,309

Registered U. S. Civil Aircraft by Total Rated Take-off Hp.

Number of Engines	Total Rated Hp Groups	Number of Aircraft: Active	Inactive	Total
SINGLE-ENGINE	1-65	10,898	9,248	20,146
	66-100	13,142	6,851	19,993
	101-200	21,726	7,482	29,208
	201-350	13,566	4,383	17,949
	351-500	1,593	1,394	2,987
	501-700	364	144	508
	Over 700	251	39	290
	Total	61,540	29,541	91,081
TWIN-ENGINE	1-800	4,167	1,190	5,357
	801-2,000	995	228	1,223
	2,001-4,000	1,229	264	1,493
	Over 4,000	418	33	451
	Total	6,809	1,715	8,524
FOUR-ENGINE	1-5,000	9	8	17
	5,001-6,000	161	39	200
	6,001-10,000	566	22	588
	Over 10,000	219	27	246
	Total	955	96	1,051
TURBINE-POWERED	2-Eng. Prop.	77	0	77
	4-Eng. Turboprop	187	1	188
	1-Eng. Turbojet	4	61	65
	2-Eng. Turbojet	5	3	8
	4-Eng. Turbojet	104	0	104
	Total	377	65	442
Three-engine, total		7	8	15
Experimental and Unknown		735	2,831	3,566
Balloons and Dirigibles		17	28	45
Gliders		307	278	585
Total—All Civil Aircraft		70,747	34,562	105,309

Registered U. S. Civil Aircraft by Year of Manufacture

Year of Manufacture	Number of Aircraft: Active	Inactive	Total	% of U. S. Total: Active	Inactive	Total
1959	5,596	12	5,608	7.9	.....	5.3
1958	4,986	913	5,899	7.0	2.6	5.6
1957	4,180	917	5,097	5.9	2.7	4.8
1956	4,902	960	5,862	6.9	2.8	5.6
1955	3,113	689	3,802	4.4	2.0	3.6
1954	1,966	493	2,459	2.8	1.4	2.3
1953	2,457	610	3,067	3.5	1.8	2.9
1952	2,109	489	2,598	3.0	1.4	2.5
1951	1,314	375	1,689	1.9	1.1	1.6
1950	1,998	607	2,605	2.8	1.8	2.5
All Other	38,126	28,497	66,623	53.9	82.4	63.3
Total	70,747	34,562	105,309	100.0	100.0	100.0

Registered U. S. Civil Aircraft by Make

Ranked According to Active Aircraft

Manufacturer	Number of Aircraft: Active	Inactive	Total	% of U. S. Total: Active	Inactive	Total
Piper	18,029	7,843	25,872	25.5	22.7	24.6
Cessna	17,696	4,665	22,361	25.0	13.5	21.2
Beech	6,520	1,577	8,097	9.2	4.6	7.7
Champion	3,653	2,029	5,682	5.2	5.9	5.4
Universal	3,170	1,626	4,796	4.5	4.7	4.6
Silvaire	2,445	1,334	3,779	3.5	3.9	3.6
Taylorcraft	2,389	2,261	4,650	3.4	6.5	4.4
Forney	2,283	1,215	3,498	3.2	3.5	3.3
Boeing	2,050	1,425	3,475	2.9	4.1	3.3
Aeronca	1,836	1,782	3,618	2.6	5.2	3.4
Douglas	1,479	358	1,837	2.1	1.0	1.7
Navion	1,213	413	1,626	1.7	1.2	1.5
All Other	7,984	8,034	16,018	11.2	23.2	15.3
Total	70,747	34,562	105,309	100.0	100.0	100.0

Registered U. S. Civil Aircraft by Type

Type of Aircraft	Aircraft Registered: Active	Inactive	Total
Turbojet	113	64	177
Turboprop	264	1	265
Single-engine, land	60,642	30,360	91,002
Single-engine, sea or amphibian	935	803	1,738
Multi-engine, sea or amphibian	237	189	426
Rotorcraft	548	334	882
Gliders	307	278	585
Dirigibles	1	5	6
Balloons	16	23	39
Multi-engine, land	7,684	2,505	10,189
Total	70,747	34,562	105,309

Value of Backlog of Orders—Complete Aircraft and Parts

(In Thousands of Dollars)

Industry Div., Bureau of the Census

As of September 30	Type of Customer: U. S. Military	All Other	Total
1960	$4,384,000	$1,807,000	$6,191,000
1959	4,635,000	2,383,000	7,018,000
1958	5,349,000	2,759,000	8,108,000
1957	6,622,000	2,744,000	9,366,000
1956	9,450,000	2,797,000	12,247,000
1955	8,528,000	1,128,000	9,656,000
1954	9,821,000	665,000	10,486,000
1953	11,210,000	734,000	11,944,000
1952	9,300,000	827,000	10,127,000

U.S. PASSENGER CAR ENGINE TRENDS

Weighted Average of Car Weights and Engine Hp.

Based on Number of Units Sold

	No. of Units Sold*	Gross Shipping Wgt. of Cars Sold (lb.)†	Gross Max. Hp. of Cars Sold‡	Average Weight (lb.)	Average Hp.
1930	2,625,979	7,320,000,000	142,800,000	2,780	54
1931	1,908,141	5,380,000,000	109,200,000	2,820	57
1932	1,096,399	3,200,000,000	75,400,000	2,920	69
1933	1,493,794	4,220,000,000	106,000,000	2,820	71
1934	1,888,557	5,560,000,000	156,000,000	2,940	83
1935	2,743,908	8,120,000,000	234,000,000	2,960	85
1936	3,404,497	10,190,000,000	291,000,000	3,000	86
1937	3,483,752	10,470,000,000	303,900,000	3,005	87
1938	1,891,021	5,743,000,000	169,200,000	3,035	89
1939	2,653,377	7,950,000,000	239,200,000	2,996	90
1940	3,415,905	10,511,000,000	312,100,000	3,077	91
1941	3,731,166	11,793,000,000	356,800,000	3,161	96
1946	1,815,196	599,600,000	181,200,000	3,303	100
1947	3,167,231	10,528,700,000	317,400,000	3,324	100
1948	3,490,952	11,552,200,000	352,600,000	3,309	100
1949	4,838,342	15,901,000,000	500,100,000	3,286	104
1950	6,326,438	20,624,200,000	660,400,000	3,260	104
1951▲	5,040,075	16,423,688,035	539,741,485	3,259	107
1952	4,129,095	13,528,520,533	464,215,981	3,276	112
1953	5,709,871	19,107,953,124	686,791,601	3,346	120
1954	5,503,462	18,609,029,037	745,752,498	3,381	136
1955	7,111,443	24,213,478,823	1,193,509,431	3,405	168
1956	5,857,061	20,041,173,474	1,086,056,050	3,422	185
1957	5,775,515	20,386,010,271	1,178,861,681	3,530	204
1958	4,273,390	15,277,313,068	904,361,219	3,575	212
1959	5,416,961	19,834,811,402	971,451,240	3,662	179
1960	6,077,865	21,240,331,684	991,584,811	3,495	163

† Shipping weight of 5 passenger, 4 door sedan taken as typical and used in conjunction with new registrations of each model.
‡ Maximum horsepower taken from previous Statistical Issues and used in conjunction with new registrations of each model.
* R. L. Polk & Co. registrations of new passenger cars. ▲ Data from 1951 on does not include foreign cars.

Progress in Passenger Car Engine Design

Average for Passenger Car Engines—Based on Number of Chassis Models Offered for Years 1938-1952
Based on Engine Models for 1953-1961

	Average Piston Speeds (Ft. per Min.)	Average Displacement per Cylinder (Cu. In.)	Average Number of Cylinders	Average R.P.M. at Max. B.H.P.	Average Brake Horsepower
1938	2545	35.7	7.60	3576	111.7
1939	2498	35.1	7.28	3543	105.9
1940	2490	35.0	7.25	3580	107.9
1941	2492	35.2	7.15	3603	110.9
1942	2534	34.9	7.20	3638	112.5
1946	2522	35.4	6.97	3682	108.4
1947	2550	35.8	7.00	3660	109.4
1948	2492	35.6	6.95	3629	107.9
1949	2522	36.8	6.80	3690	113.3
1950	2505	37.2	6.88	3657	116.6
1951	2505	36.8	6.80	3758	118.0
1952	2523	36.6	6.87	3823	122.8
1953	2560	36.1	6.69	3869	125.0
1954	2589	36.8	6.78	3953	140.8
1955	2585	36.7	7.40	4284	173.8
1956	2634	39.6	7.51	4353	207.9
1957	2724	39.9	7.62	4540	232.6
1958	2735	42.3	7.70	4545	259.6
1959	2651	43.2	7.62	4431	251.1
1960	2559	44.1	7.46	4375	228.4
1961	2705	39.1	7.36	4316	201.2

	Average Hp. per Cu. In. of Displacement	Average Compression Ratio	Average B. M. E. P. at Maximum Hp. (lb. per sq. in.)	Bore, Stroke and Displacement		
				Bore (In.)	Stroke (In.)	Disp. (Cu. In.)
1938	.412	6.32	91.2	3.25	4.27	271.1
1939	.416	6.32	92.7	3.24	4.23	255.3
1940	.426	6.41	93.9	3.25	4.17	254.0
1941	.431	6.63	96.7	3.26	4.15	252.1
1942	.446	6.60	98.5	3.26	4.16	251.8
1946	.440	6.77	94.6	3.27	4.11	246.4
1947	.437	6.73	94.5	3.28	4.18	250.4
1948	.437	6.78	95.3	3.29	4.12	247.1
1949	.453	6.93	97.3	3.35	4.10	250.0
1950	.456	7.00	98.6	3.37	4.11	256.1
1951	.474	7.09	99.5	3.40	4.09	250.4
1952	.488	7.14	101.4	3.39	3.96	251.6
1953	.518	7.31	106.0	3.40	3.97	241.4
1954	.564	7.31	113.1	3.46	3.93	249.5
1955	.639	7.87	118.1	3.62	3.57	271.8
1956	.691	8.47	127.2	3.72	3.63	297.3
1957	.765	8.75	133.4	3.74	3.69	304.1
1958	.797	9.32	138.8	3.86	3.61	325.9
1959	.746	9.30	136.3	3.90	3.59	329.2
1960	.717	9.15	133.3	3.84	3.51	310.2
1961	.699	8.93	128.2	3.76	3.51	287.9

1961.... U.S. PASSENGER CARS

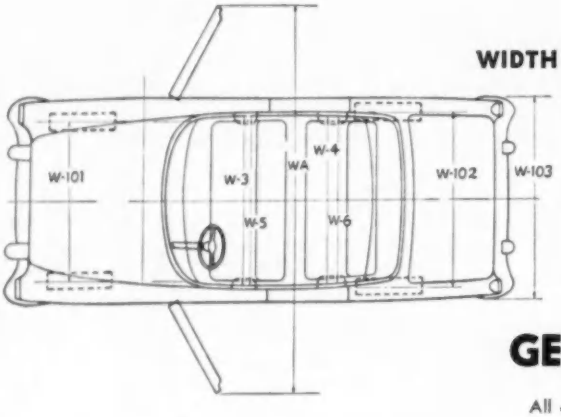
• PRICE • WEIGHT • BODIES •

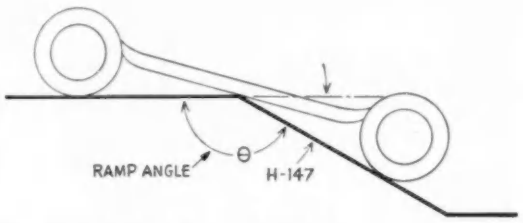
Following are prices at factory for cars with standard equipment as of February 17, 1961. State or local taxes, transportation and finance charges and optional equipment are extra.

BODY MAKE AND MODEL	List Price at Factory without Federal Taxes	Federal Taxes and Handling Charges	Suggested Price at Factory including Federal Taxes	Shipping Weight
AMERICAN MOTOR CORP.				
RAMBLER				
American-6				
DeLuxe				
Sedan, 2d	1684	161	1845	2504
Sedan, 4d	1730	164	1894	2541
Sta. Wagon, 2d	1902	178	2080	2552
Sta. Wagon, 4d	1948	181	2129	2595
Super-6				
Sedan, 2d	1753	167	1930	2506
Sedan, 4d	1809	170	1979	2544
Sta. Wagon, 2d	1981	184	2165	2554
Sta. Wagon, 4d	2027	187	2214	2620
Custon-6				
Sedan, 2d	1884	176	2060	2557
Sedan, 4d	1929	180	2109	2594
Sta. Wag., 2d	2102	193	2295	2612
Sta. Wag., 4d	2148	196	2344	2671
Convertible	2170	199	2369	....
Classic-6				
DeLuxe				
Sedan, 4d	1918	180	2098	2915
Sta. Wag., 4d, 2s	2233	204	2437	3047
Super				
Sedan, 4d	2071	197	2268	2933
Sta. Wag., 4d, 2s	2354	218	2572	3066
Sta. Wag., 4d, 3s	2473	224	2697	3121
Custom				
Sedan, 4d	2206	207	2413	2863
Sta. Wag., 4d, 2s	2489	228	2717	2989
Sta. Wag., 5d, 3s	2608	234	2842	3048
Classic-V8				
Super				
Sedan, 4d	2191	206	2397	3255
Sta. Wag., 4d, 2s	2474	227	2701	3376
Sta. Wag., 5d, 3s	2593	233	2826	3430
Custom				
Sedan, 4d	2298	214	2512	3262
Sta. Wag., 4d, 2s	2581	235	2816	3378
Sta. Wag., 5d, 3s	2700	241	2941	3437
Ambas.-V8				
Super				
Sedan, 4d	2323	214	2537	3361
Sta. Wag., 4d, 2s	2606	235	2841	3493
Sta. Wag., 5d, 3s	2725	241	2966	3553
Custom				
Sedan, 4d	2458	224	2682	3380
Sta. Wag., 4d, 2s	2741	245	2986	3495
Sta. Wag., 5d, 3s	2860	251	3111	3561
CHECKER MOTORS				
Superba				
Sedan, 4d	....	...	2542	3320
Sta. Wag., 4d	....	...	2896	3570
Marathon				
Sedan, 4d	....	...	2650	3345
Sta. Wag., 4d	....	...	3004	3615
CHRYSLER CORP.				
CHRYSLER				
Newport				
Sedan, 4d	2693	271	2964	3710
Hardtop, 2d	2750	275	3025	3690
Hardtop, 4d	2824	280	3104	3730
Convertible	3137	305	3442	3760
Sta. Wag., 2s	3230	311	3541	4070
Sta. Wag., 3s	3305	317	3622	4155
Windsor				
Sedan, 4d	2920	298	3218	3730
Hardtop, 2d	2999	304	3303	3710
Hardtop, 4d	3059	308	3367	3765
New Yorker				
Sedan, 4d	3752	371	4123	4055
Hardtop, 2d	3800	375	4175	4065
Hardtop, 4d	3880	381	4261	4100
Convertible	4188	404	4592	4070
Sta. Wag., 2s	4348	416	4764	4425
Sta. Wag., 3s	4448	423	4871	4455
300-G				
Hardtop, 2d	4952	459	5411	4260
Convertible	5352	489	5841	4315
DE SOTO				
Hardtop, 2d	2827	275	3102	....
Hardtop, 4d	2888	279	3167	....
DODGE DART‡				
Seneca-V8				
Sedan, 2d	2187	210	2397	3470
Sedan, 4d	2235	214	2449	3515
Sta. Wag., 4d, 6p	2575	240	2815	3920
Pioneer-V8				
Sedan, 2d	2310	220	2530	3460
Sedan, 4d	2355	223	2578	3510
Hardtop, 2d	2382	225	2607	3500
Sta. Wag., 4d, 6p	2660	246	2906	3940
Sta. Wag., 4d, 9p	2758	253	3011	4005
Phoenix-V8				
Sedan, 4d	2482	233	2715	3535
Hardtop, 2d	2503	234	2737	3520
Hardtop, 4d	2558	238	2796	3555
Convertible	2736	252	2988	3580
DODGE				
Polara-V8				
Sedan, 4d	2706	260	2966	3700
Hardtop, 2d	2767	265	3032	3690
Hardtop, 4d	2840	270	3110	3740
Convertible	2972	280	3252	3765
Sta. Wagon, 6p	3011	283	3294	4115
Sta. Wagon, 9p	3118	291	3409	4125
IMPERIAL				
Custom				
Southampt., 2d	4481	442	4923	4715
Southampt., 4d	4654	455	5109	4740
Crown				
Southampt., 2d	4928	475	5403	4790
Southampt., 4d	5155	492	5647	4855
Convertible	5273	501	5774	4865
Le Baron				
Southampt., 4d	5870	556	6426	4875
LANCER				
170				
Sedan, 2d	1832	175	2007	2585
Sedan, 4d	1889	180	2069	2595
Wagon, 6p	2179	203	2382	2760
770				
Sedan, 4d	1968	186	2154	2605
Hardtop, 2d	1993	188	2181	2595
Wagon, 6p	2257	209	2466	2775
PLYMOUTH††				
Savoy-V8				
Sedan, 2d	2170	209	2379	3440
Sedan, 4d	2217	213	2430	3465
Belvedere-V8				
Sedan, 2d	2290	218	2508	3450
Sedan, 4d	2337	222	2559	3470
Hardtop, 4d	2357	223	2580	3460
Fury-V8				
Sedan, 4d	2463	231	2694	3515
Hardtop, 2d	2485	233	2718	3520
Hardtop, 4d	2538	237	2775	3555
Convertible	2717	250	2967	3535
Suburban-V8				
DeLuxe, 2d, 6p	2488	233	2721	3845
DeLuxe, 4d, 6p	2550	238	2788	3885
Custom, 4d, 6p	2636	244	2880	3885
Custom, 4d, 9p	2738	252	2990	3985
Sport, 4d, 6p	2770	254	3024	3890
Sport, 4d, 9p	2872	262	3134	3995
VALIANT				
V-100				
Sedan, 2d	1782	171	1953	....
Sedan, 4d	1838	176	2014	....
Sta. Wag., 2s	2128	199	2327	....
V-200				
Sedan, 4d	1927	183	2110	....
Hardtop, 2d	1952	185	2137	....
Sta. Wag., 2s	2217	206	2423	....
FORD MOTOR CO.				
COMET				
Sedan, 2d	1830	168	1998	2399
Sedan, 4d	1880	173	2053	2432
Sta. Wag., 2d	2119	191	2310	2548
Sta. Wag., 4d	2158	...	....	2581
FALCON				
Tudor	1746	166	1912	2259
Fordor	1803	171	1974	2288
Sta. Wagon, 2d	2036	189	2225	....
Sta. Wagon, 4d	2074	194	2268	....
FORD†				
Fairlane-V8				
Tudor Sedan	2163	214	2377	3585
Fordor Sedan	2213	218	2431	3683
Fairlane 500-V8				
Tudor Sedan	2270	222	2492	3600
Fordor Sedan	2320	226	2546	3691
Galaxie-V8				
Tudor Sedan	2420	232	2652	3586
Fordor Sedan	2470	236	2706	3668
Club Vict	2476	237	2713	3643
Town Vict	2536	242	2778	3686
Starliner	2476	237	2713	3615
Sunliner	2708	255	2963	3792
Sta. Wag.-V8				
Tudor Ranch	2465	237	2702	3914
Fordor Ranch	2530	242	2772	4009
Ctry. Sed., 4d, 6p	2619	249	2868	4032
Ctry. Sed., 4d, 9p	2717	255	2972	4060
Ctry. Squire, 6p	2795	262	3057	....
Ctry Squire	2860	267	3127	4084
THUNDERBIRD				
Hardtop	3426	329	3755	3799
Convertible	3860	362	4222	3897
LINCOLN				
Continental				
Sedan, 4d	5565	502	6067	4927
Convertible	6166	547	6713	5215
MERCURY				
Meteor-6				
600				
Sedan, 2d	2201	216	2417	3549
Sedan, 4d	2251	220	2471	3616
800				
Sedan, 2d	2367	228	2595	3582
Sedan, 4d	2417	232	2649	3664
Hardtop, 2d	2423	233	2656	3596
Hardtop, 4d	2483	238	2721	3682
Sta. Wag.	2562	244	2806	....
Meteor-8				
600				
Sedan, 2d	2309	224	2533	3647
Sedan, 4d	2359	228	2587	3714
800				
Sedan, 2d	2475	236	2711	3680
Sedan, 4d	2525	240	2765	3762
Hardtop, 2d	2531	241	2772	3694
Hardtop, 4d	2591	246	2837	3780
Monterey				
Sedan, 4d	2622	247	2869	3777
Hardtop, 2d	2628	248	2876	3709
Hardtop, 4d	2688	253	2941	3795
Convertible	2860	266	3126	3872
Sta. Wag.				
Commuter	2670	252	2922	4115
Colony Park	2852	266	3118	4131
GENERAL MOTORS CORP.				
BUICK				
Special				
Sedan, 4d	2175	209	2384	2610
Sta. Wag., 4d	2450	231	2681	2775
Del. Sed., 4d	2300	219	2519	2632
Del. Wag., 4d	2575	241	2816	2794
Le Sabre				
Sedan, 2d	2720	273	2993	4033
Sedan, 4d	2826	281	3107	4102
Hardtop, 2d	2867	285	3152	4054
Hardtop, 4d	2938	290	3228	4129
Convertible	3082	300	3382	4186
Est. Wagon, 2s	3306	317	3623	4450
Est. Wagon, 3s	3406	324	3730	4483
Invicta				
Hardtop, 2d	3129	318	3447	4090
Hardtop, 4d	3192	323	3515	4179
Convertible	3290	330	3620	4206
Electra				
Hardtop, 2d	3460	365	3825	4260
Sedan, 4d	3466	352	3818	4298
Hardtop, 4d	3566	366	3932	4333
Electra 225				
Convertible	3795	397	4192	4441
Riveria, 4d	3942	408	4350	4417
CADILLAC				
Series 62				
Coupe	4475	417	4892	4560
Sedan, 6w	4650	430	5080	4680
Cpe. deVille, 4w	4810	442	5252	4595
Convertible	5000	455	5455	4720
Sed. deVille, 4w	5040	458	5498	4715
Biarritz	5950	527	6477	4805
60 Special				
Hardtop	5700	533	6233	4770
Series 75				
Sedan	8750	783	9533	5390
Limousine	8950	798	9748	5420
CHEVROLET▲				
Biscayne-V8				
Sedan, 2d	2156	213	2369	3425
Sedan, 4d	2206	217	2423	2505
Sta. Wag., 4d, 6p	2519	241	2760	3845
Sta. Wag., 4d, 9p	2615	248	2863	3895
BelAir-V8				
Sedan, 2d	2270	221	2491	3435
Sedan, 4d	2320	225	2545	3520
Hardtop, 2d	2368	228	2596	3480
Hardtop, 4d	2428	233	2661	3555
Sta. Wag., 4d, 6p	2607	247	2854	3860
Sta. Wag., 4d, 9p	2703	254	2957	3910
Impala				
Sedan, 2d	2412	231	2643	3440
Sedan, 4d	2462	235	2697	3525
Hardtop, 2d	2486	236	2704	3480
Hardtop, 4d	2528	241	2769	3570
Convertible	2700	254	2954	3600
Sta. Wag., 4d, 6p	2739	257	2996	3885
CHEVROLET, cont'd				
Sta. Wag., 9p	2835	264	3099	3930
CORVAIR				
500				
Coupe	1750	170	1920	2320
Sedan, 4d	1800	174	1974	2355
Sta. Wag.	2075	...	....	2530
700				
Coupe	1810	175	1985	2380
Sedan, 4d	1880	179	2039	2380
Sta. Wag.	2135	196	2331	2555
900				
Coupe	2010	191	2201	....
95				
Spts. Wag	2433	218	2651	....
CORVETTE				
Sportscar	3619	315	3934	2905
OLDSMOBILE				
F-85				
Sedan, 4d	2175	209	2384	2541
Del. Sed., 4d	2300	219	2519	2547
Sta. Wag., 2s	2425	229	2654	2716
Del. Sta. Wag.	2550	239	2789	2731
Series 88				
Sedan, 2d	2574	261	2835	3966
Celeb. Sedan	2634	266	2900	4031
Hol. Coupe	2687	269	2956	3981
Hol. Spt. Sed	2759	275	3034	4074
Convertible	2991	293	3284	4068
Fiesta, 2s	3065	298	3363	4354
Fiesta, 3s	3165	306	3471	4428
Super 88				
Celeb. Sedan	2881	295	3176	4065
Hol. Coupe	3020	305	3325	4024
Hol. Spt. Sed	3092	310	3402	4099
Convertible	3268	324	3592	4099
Fiesta, 2s	3336	329	3665	4382
Fiesta, 3s	3436	337	3773	4445
Series 98				
Celeb. Sedan	3533	354	3887	4231
Hol. Sedan	3658	363	4021	4269
Hol. Coupe	3715	368	4083	4187
Hol. Spt. Sed	3786	373	4159	4319
Convertible	3975	387	4362	4225
PONTIAC				
Tempest				
Sedan, 4d	1975	192	2167	2800
Sta. Wag., 6p	2225	213	2438	2980
Catalina				
Spt. Sedan, 2d	2390	241	2631	3650
Sedan, 4d	2456	246	2702	3725
Spt. Coupe	2515	251	2766	3680
Vista Sed., 4d	2586	256	2842	3785
Convertible	2805	273	3078	3805
Sta. Wagon, 6p	2825	274	3099	4135
Sta. Wagon, 9p	2925	282	3207	4175
Ventura				
Spt. Coupe	2706	265	2971	3685
Sedan, 4d	2777	270	3047	3795
Star Chief				
Sedan, 4d	2736	267	3003	3840
Vista Sed., 4d	2859	277	3136	3870
Bonneville				
Spt. Coupe	2970	285	3255	3810
Vista Sed., 4d	3040	291	3331	3895
Convertible	3175	301	3476	3905
Sta. Wagon	3225	305	3530	4185
STUDE-PACKARD CORP.				
STUDEBAKER				
Lark-6				
DeLuxe				
Sedan, 2d	1757	178	1935	2661
Sedan, 4d	1822	183	2005	2665
Sta. Wagon, 2d	2086	204	2290	2836
Sta. Wagon, 4d	2160	210	2370	2865
Regal				
Sedan, 4d	1961	...	....	2692
Hardtop, 2d	2043	200	2243	2770
Sta. Wagon, 4d	2299	...	....	2909
Convertible	2331	223	2554	3034
Lark-V8				
DeLuxe				
Sedan, 2d	1875	195	2070	2921
Sedan, 4d	1940	200	2140	2941
Sta. Wagon, 2d	2204	221	2425	....
Sta. Wagon, 4d	2278	227	2505	....
Regal				
Sedan, 4d	2079	...	....	2966
Hardtop, 2d	2161	217	2378	3033
Sta. Wagon, 4d	2417	...	....	3183
Convertible	2449	240	2689	3315
Cruiser, 4d	2239	219	2458	3027
Hawk				
Spt. Coupe	2417	233	2650	3205

† For 6 cyl. models deduct $105 from List Price and $113 from Suggested Delivered Price at Factory.
†† For 6 cyl. models deduct $111 from List Price and $119 from Suggested Delivered Price at Factory.
‡ For 6 cyl. models deduct $111 from List Price and $119 from Delivered Price at Factory.
▲ For 6 cyl. models deduct $100 from List Price and $107 from Suggested Delivered Price at Factory.

1961 U. S. CAR SPECIFICATIONS





GENERAL BODY DATA

All dimensions apply to 5 or 6 passenger, 4 door sedan unless otherwise noted.

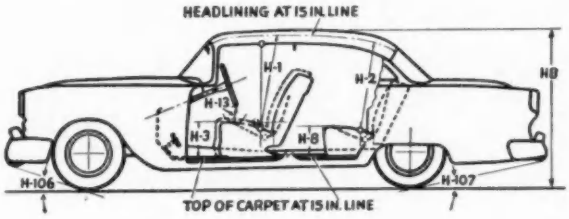
PASSENGER CAR MAKE AND MODEL	MISCELLANEOUS									GENERAL DIMENSIONS (Ins.)								
							Glass Area (Sq. In.)			L101	Overhang		Tread		Overall Dimensions			
	Type of Finish	Hood Hinge Location	Hood Counterbalanced	Hood Release Control	Windshield Type	Rear Window Type	Windshield	Back Light	Side Glass	Wheelbase	L104 Front—Including Bumper Guards	L105 Rear—Including Bumper Guards	W101 Front	W102 Rear	L103 Length—Bumper to Bumper	W103 Width	WA Width—Doors Open	HB Height—Unloaded
AMERICAN MOTORS CORP.																		
Rambler American	E	R	Y	Ex	SC	C	838.0	571.0	1338.0	100.0	28.3	44.8	54.6	55.0	173.1	70.0	139.9	NA
Classic-6	E	R	Y	Ex	SC	C	1154.0	1236.0	1292.0	108.0	32.5	49.3	57.8	58.0	189.8	72.4	145.0	NA
Classic-8	E	R	Y	Ex	SC	C	1154.0	1236.0	1292.0	108.0	32.5	49.3	58.8	59.1	189.8	72.4	145.0	NA
Ambassador	E	R	Y	Ex	CC	C	1372.0	1236.0	1292.0	117.0	31.6	50.4	58.8	59.1	199.0	73.6	145.0	NA
CHECKER MOTORS CORP.																		
Checker Superba, Marathon	L	R	Y	Ex	C	C	944.0	818.1	1864.8	120.0	32.8	46.8	60.0	62.5	202.0	76.0	137.0	64.8
CHRYSLER CORP.																		
Chrysler Newport, Windsor	E	R	Y	In	SC	C	1575.0	1283.0	1186.0	122.0	34.8	58.8	61.0	59.7	215.6	79.4	154.1	56.8
New Yorker	E	R	Y	In	SC	C	1575.0	1283.0	1186.0	126.0	34.8	59.0	61.2	60.0	219.8	79.4	154.1	57.0
300-G[1]	E	R	Y	In	SC	C	1575.0	1778.0	1254.0	126.0	34.8	59.0	61.2	60.0	219.8	79.4	167.8	57.1
De Soto [2]	E	R	Y	In	SC	C	1575.0	1283.0	1230.0	122.0	34.8	58.8	61.0	59.7	215.6	79.4	154.1	56.8
Dodge Polara	E	R	Y	Ex	SC	C	1575.0	1344.0	1186.0	122.0	33.4	57.0	61.5	60.2	212.4	78.7	154.0	56.7
Dodge Dart Seneca, Pioneer, Phoenix-6	E	R	Y	Ex	SC	C	1575.0	1344.0	1148.0	118.0	33.4	58.0	61.5	60.1	209.4	78.7	154.0	56.4
Seneca, Pioneer, Phoenix-8	E	R	Y	Ex	SC	C	1575.0	1344.0	1148.0	118.0	33.4	58.0	61.5	60.2	209.4	78.7	154.0	56.7
Dodge Lancer 170, 770	E	R	Y	Ex	SC	C	985.0	919.0	1434.0	106.5	32.9	49.4	56.0	55.0	188.8	72.3	134.2	55.6
Imperial Custom[2], Crown[2]	E	R	Y	In	CC	C	1622.0	1479.0	1432.0	129.0	40.6	57.5	61.8	62.2	227.1	81.7	159.7	58.5
Le Baron[2]	E	R	Y	In	CC	C	1622.0	802.0	1432.0	129.0	40.6	57.5	61.8	62.2	227.1	81.7	159.7	58.5
Plymouth Savoy, Belvedere, Fury-6	E	R	Y	Ex	SC	C	1575.0	1344.0	1148.0	118.0	36.1	55.4	60.9	59.6	209.5	80.0	154.0	56.7
Savoy, Belvedere, Fury-8	E	R	Y	Ex	SC	C	1575.0	1344.0	1148.0	118.0	36.1	55.4	60.9	59.7	209.5	80.0	154.0	56.7
Valiant V-100, V-200	E	R	Y	Ex	SC	C	985.0	919.0	1434.0	106.5	29.2	48.0	56.0	55.5	183.7	70.4	134.2	55.6
FORD MOTOR CO.																		
Comet	E	R	N	Ex	C	FI	1232.0	893.3	1313.8	114.0	30.8	50.0	55.0	54.5	194.8	70.4	134.4	56.3
Falcon	E	R	N	Ex	C	C	1232.0	1145.0	1313.8	109.5	29.4	42.3	55.0	54.5	181.2	70.6	134.4	56.3
Ford Fairlane, Fairlane 500	E	R	Y	Ex	CC	C	1470.0	1607.0	1450.0	119.0	32.4	58.5	61.0	60.0	209.9	79.9	158.5	57.0
Galaxie	E	R	Y	Ex	CC	C	1470.0	992.0	1450.0	119.0	32.4	58.5	61.0	60.0	209.9	79.9	158.5	57.0
Lincoln Continental	E	F	Y	In	CC	C	1552.0	768.0	1320.0	123.0	36.5	52.9	62.1	61.0	212.4	78.6	146.9	55.1
Mercury Meteor 600	E	R	Y	Ex	CC	C	1470.0	1607.0	1450.0	120.0	33.8	60.8	61.0	60.0	214.6	79.9	158.5	57.0
Meteor 800, Monterey	E	R	Y	Ex	CC	C	1470.0	992.0	1450.0	120.0	33.8	60.8	61.0	60.0	214.6	79.9	168.6	57.1
Thunderbird [1]	E	R	Y	Ex	CC	FI	1473.0	1164.0	1177.0	113.0	38.2	53.8	61.0	60.0	205.0	75.9	170.1	53.9
GENERAL MOTORS CORP.																		
Buick Special	L	R	Y	Ex	CC	C	1236.6	1081.0	1322.1	112.1	31.0	45.3	56.0	56.0	188.4	71.3	136.1	53.1
Le Sabre, Invicta[2]	L	R	Y	Ex	CC	C	1604.3	1224.5	1339.6	123.0	32.5	57.7	62.0	61.0	213.2	78.0	141.2	56.8
Electra	L	R	Y	Ex	CC	C	1604.3	1466.6	1640.9	126.0	32.5	60.7	62.0	61.0	219.2	78.0	145.7	57.8
Electra 225	L	R	Y	Ex	CC	C	1604.3	1466.6	1640.9	126.0	32.5	60.7	62.0	61.0	219.2	78.0	145.9	57.8
Cadillac 60	L	R	Y	Ex	CC	C	1604.2	840.2	1519.4	129.5	33.5	59.0	61.0	61.0	222.0	79.8	145.9	.....
62, 63[2]	L	R	Y	Ex	CC	C	1604.2	1686.4	1440.4	129.5	33.5	59.0	61.0	61.0	222.0	79.8	145.9	.....
75	L	R	Y	Ex	CC	CC	1742.8	461.7	2081.0	149.8	33.5	59.0	61.0	61.0	242.3	80.6	154.7	.....
Chevrolet Biscayne, Biscayne																		
Fleetmaster, Bel Air, Impala	L	R	Y	Ex	C	C	1600.3	1338.0	1318.2	119.0	32.8	57.5	60.3	59.3	209.3	78.4	143.5	57.6
Corvair 500, 700, 900	L	R	Y	Ex	CC	C	1122.8	1104.2	1154.7	108.0	30.3	41.7	54.0	54.0	180.0	67.0	130.1	53.0
Corvette [4]	L	F	N	In	C	FI	908.0	408.0	500.0	102.0	31.8	42.9	57.0	59.0	176.7	70.4	134.5	52.9
Oldsmobile F-85		R	Y	Ex	C	C	1293.0	1137.4	1439.5	112.0	30.5	45.7	56.0	56.0	188.2	71.5	138.7	54.3
88, Super 88	L	R	Y	Ex	CC	C	1668.3	1405.0	2852.8	123.0	32.6	56.5	61.0	61.0	212.0	77.2	141.1	57.5
98	L	R	Y	Ex	CC	C	1668.3	1467.3	3604.0	126.0	32.6	59.5	61.0	61.0	218.0	77.2	144.0	58.3
Pontiac Catalina	L	R	Y	Ex	C	C	1600.3	1338.0	1318.2	119.0	34.0	57.0	62.5	62.5	210.0	78.2	141.4	57.7
Ventura[2]	L	R	Y	Ex	C	C	1600.3	1224.0	1339.6	119.0	34.0	57.0	62.5	62.5	210.0	78.2	141.4	57.7
Star Chief	L	R	Y	Ex	CC	C	1604.3	1338.0	1318.2	123.0	34.0	60.0	62.5	62.5	217.0	78.2	141.4	57.6
Bonneville[2]	L	R	Y	Ex	CC	C	1604.3	1224.0	1339.6	123.0	34.0	60.0	62.5	62.5	217.0	78.2	141.4	57.6
Tempest	L	R	Y	Ex	C	C	1236.6	1081.0	1322.1	112.0	31.5	45.8	56.5	56.8	189.3	72.2	136.1	55.1
STUDEBAKER-PACKARD CORP.																		
Studebaker Lark (Deluxe and Regal)	E	R	Y	In	C	C	1112.0	1075.5	1208.2	108.5	26.4	40.1	57.4	56.6	175.0	71.4	135.4	56.5
Lark (Cruiser)	E	R	Y	In	C	C	1112.0	1064.2	1316.0	113.0	26.4	40.1	57.4	56.6	179.0	71.4	135.4	56.5
Hawk[1]	E	R	N	Ex	C	C	858.0	910.0	1098.0	120.5	34.9	48.6	57.4	56.6	204.0	71.3	153.3	57.8

ABBREVIATIONS

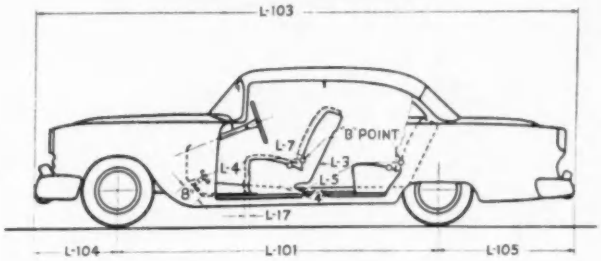
[1]—Two door hardtop coupe.
[2]—Four door hardtop sedan.
[4]—Two door convertible.
C—One piece curved.
CC—Compound curved.
E—Enamel.
Ex—External.
F—Front.
FI—One piece flat.
In—Internal.
L—Acrylic lacquer.
N—No.
NA—Not available.
R—Rear.
SC—Single curved.
Y—Yes.

For Directory of Car Manufacturers listed above, see Page 53

HEIGHT DIMENSIONS



LENGTH DIMENSIONS



BODY DIMENSIONS

All dimensions apply to 5 or 6 passenger, 4 door sedan unless otherwise noted.

PASSENGER CAR MAKE AND MODEL	HEIGHT DIMENSIONS									WIDTH DIMENSIONS				LENGTH DIMENSIONS				
	Interior					Exterior				Interior				Interior				
	H1	H2	H3	H8	H13	H106	H107	H147	H156	W3	W4	W5	W6	L3	L4	L5	L7	L17
	Front Headroom	Rear Headroom	Front Cushion Height to Floor	Rear Cushion Height to Floor	Steering Wheel Clearance to Seat Cushion	Angle of Approach—Deg.	Angle of Departure—Deg.	Ramp Breakover Angle—Deg.	Minimum Road Clearance—In.	Front Seat Shoulder Room	Rear Seat Shoulder Room	Front Seat Hip Room	Rear Seat Hip Room	Back of Front Seat to Rear Seat Back	Leg Room—Front	Leg Room—Rear	Steering Wheel Clearance	Adjustment of Front Seat
AMERICAN MOTORS CORP.																		
Rambler American	35.0	33.0	9.9	12.0	5.7	24.2	14.6	14.4	5.3 REC	51.5	49.8	58.0	45.3	25.4	44.0	37.5	14.2	6.0
Classic-6	36.0	34.5	10.0	13.9	5.9	21.0	13.9	13.6	5.6 EOP	57.7	57.6	59.8	60.1	26.7	43.0	40.0	13.8	6.0
Classic-8	36.0	34.5	10.0	13.9	5.9	21.0	13.9	13.6	5.4 REC	57.7	57.6	59.8	60.1	26.7	43.0	40.0	13.8	6.0
Ambassador	36.0	34.5	10.0	13.9	5.9	24.7	12.7	13.1	5.0 PS	57.7	57.6	59.8	60.1	26.7	43.0	40.0	13.8	6.0
CHECKER MOTORS CORP.																		
Checker Superba, Marathon	34.8	34.5	13.0	13.0	6.5	18.0	16.0	14.0	6.3 ES	59.0	57.2	62.3	52.5	42.6	42.0	48.0	15.0	5.0
CHRYSLER CORP.																		
Chrysler Newport, Windsor	33.3	33.6	11.4	13.0	6.3	16.0	10.5	12.4	5.2 M	60.3	59.6	63.6	62.8	30.3	45.1	42.4	15.5	4.5
New Yorker	33.3	33.6	11.9	13.0	5.5	16.3	10.7	12.4	5.5 M	60.3	59.6	63.6	62.8	29.9	45.3	42.4	15.8	4.5
300-G[2]	33.3	33.5	11.9	11.7	5.5	17.8	10.7	13.5	6.3	IS	IS	IS	IS	28.6	45.6	35.4	16.3	4.5
De Soto [3]	33.3	33.6	11.4	13.0	6.0	16.0	10.5	12.6	5.2 M	60.3	59.6	63.6	62.8	30.3	45.1	42.4	15.6	4.5
Dodge Polara	33.3	33.6	11.4	13.2	6.0	17.3	10.4	12.2	5.2	60.4	59.6	63.6	62.8	30.3	45.1	42.4	15.6	4.5
Dodge Dart Seneca, Pioneer, Phoenix-6	33.3	33.5	11.4	13.3	6.0	16.9	9.6	12.6	5.0 M	60.4	59.8	63.6	62.9	28.3	45.1	42.1	15.6	4.5
Seneca, Pioneer, Phoenix-8	33.3	33.5	11.4	13.3	6.0	17.0	10.2	12.6	5.1 M	60.4	59.8	63.6	62.9	28.3	45.1	42.1	15.6	4.5
Dodge Lancer 170, 770	33.6	33.1	11.2	13.7	6.4	23.3	12.3	11.6	5.4	54.0	54.1	56.8	56.9	27.9	42.8	39.8	15.2	4.5
Imperial Custom[3], Crown[3], Le Baron[3]	34.4	33.6	11.0	12.5	6.8	14.2	10.5	14.2	5.6 M	64.0	62.0	61.0	60.2	31.8	46.9	42.9	18.2	5.0
Plymouth Savoy, Belvedere, Fury-6	33.3	33.5	11.4	13.3	6.0	17.2	10.8	11.6	4.7 M	60.4	59.8	63.6	62.9	28.3	45.1	42.1	15.6	4.5
Savoy, Belvedere, Fury-8	33.3	33.5	11.4	13.3	6.0	17.7	11.1	12.6	5.0 M	60.4	59.8	63.6	62.9	28.3	45.1	42.1	15.6	4.5
Valiant V-100, V-200	33.6	33.1	11.2	13.7	6.4	21.5	13.1	11.6	5.4 ELT	54.0	54.1	56.8	56.9	27.9	42.8	39.8	15.2	4.5
FORD MOTOR CO.																		
Comet	33.8	32.7	11.4	14.2	5.5	23.3	12.8	12.8	5.9 RSA	55.3	55.1	57.0	57.0	27.1	43.3	39.4	13.0	4.0
Falcon	33.8	32.7	11.4	14.2	5.5	25.1	15.4	13.4	5.9 RSA	55.3	55.1	57.1	57.0	27.1	43.3	39.4	13.0	4.0
Ford Fairlane, Fairlane 500	33.5	33.9	9.3	13.1	5.2	21.4	11.6	11.5	5.5 RSA	59.9	61.2	62.1	63.5	31.8	43.3	41.6	12.8	5.5
Galaxie	33.5	33.9	9.3	13.1	5.2	21.4	11.6	11.5	5.5 RSA	59.9	61.2	62.1	63.5	31.8	43.3	41.6	12.9	5.5
Lincoln Continental	33.5	33.4	10.5	13.2	5.7	21.9	12.8	11.5	5.6 ES	59.4	59.1	59.7	60.7	28.1	44.2	40.3	14.8	5.5
Mercury Meteor 600	33.5	33.9	9.4	13.2	5.2	19.7	11.0	11.4	5.5	59.9	61.2	62.1	63.5	31.8	43.4	41.6	12.8	5.5
Meteor 800, Monterey	33.5	33.8	8.8	12.4	5.1	19.7	11.0	11.4	5.4	59.9	61.2	62.1	63.5	31.8	43.0	40.7	12.9	5.5
Thunderbird [2]	34.2	33.1	12.1	12.6	6.1	19.0	12.2	7.3	5.2 RSH	58.0	55.6	59.0	52.3	25.9	44.4	37.7	14.6	0.7
GENERAL MOTORS CORP.																		
Buick Special	33.9	33.7	11.1	12.2	4.8	26.7	16.5	12.3	4.9 RS	55.2	54.6	58.6	58.2	26.3	44.6	37.8	13.9	4.2
Le Sabre, Invicta[3]	34.5	34.2	11.0	13.4	5.6	27.2	13.6	11.3	5.5 FCP	58.9	57.9	63.3	63.2	28.8	44.5	41.4	14.7	4.8
Electra, Electra 225	34.3	34.5	11.7	13.9	4.9	28.4	12.7	11.2	5.7 FCP	58.7	57.9	63.6	63.2	31.7	44.5	44.0	14.4	4.8
Cadillac 60	34.5	34.5	12.8	14.1	4.7	25.3	12.4	11.2	5.3	58.4	57.7	59.7	59.8	31.8	45.6	44.5	15.7	4.8
62	34.3	34.1	12.8	14.0	4.7	25.3	12.4	11.2	5.3	58.7	57.8	62.4	62.6	31.8	45.6	44.3	15.7	4.8
63[3]	34.3	34.1	12.8	14.1	4.7	25.3	12.4	11.2	5.3	58.4	57.8	59.7	59.8	31.8	45.6	44.5	15.7	4.8
75	35.4	34.4	10.1	13.2	5.6	27.7	13.7	11.1	6.2	60.5	58.8	65.5	60.1	28.0	44.2	.....	14.6	4.8
Chevrolet Biscayne, Biscayne Fleetmaster, Bel Air, Impala	34.5	34.0	11.0	14.0	5.0	27.0	13.0	11.0	6.0 M	59.0	58.0	63.5	63.5	29.0	45.0	42.0	14.0	4.5
Corvair 500, 700, 900	33.5	33.5	10.0	11.5	5.1	27.0	16.0	16.0	6.0	54.0	53.5	58.5	58.0	25.5	44.0	36.5	15.0	4.0
Corvette [5]	37.1	N	7.7	N	5.5	21.3	21.2	7.8	6.7	49.4	N	59.6	N	N	46.4	N	16.3	4.4
Oldsmobile F-85	34.0	33.6	12.4	11.9	5.2	27.3	17.2	16.2	4.9 RS	55.2	54.6	58.6	58.2	26.7	44.0	37.8	13.6	3.5
88	34.5	34.4	12.0	13.4	4.9	29.1	12.3	11.5	5.6 EM	58.9	57.2	63.3	63.3	28.8	44.4	41.4	13.6	4.5
Super 88	34.5	34.4	12.4	13.8	4.9	29.1	12.3	11.5	5.6 EM	58.9	57.2	63.0	63.2	28.8	44.4	41.4	13.6	4.5
98	35.2	34.4	12.4	13.8	4.7	29.7	11.6	11.3	5.8 EM	58.7	57.9	63.6	63.2	32.2	44.5	44.3	13.6	4.5
Pontiac Catalina	34.2	34.4	12.1	13.5	5.4	23.8	13.3	13.7	6.0 F	58.7	57.2	63.2	63.2	27.8	45.3	40.8	15.0	4.5
Ventura[3]	34.2	34.1	12.0	13.3	6.0	23.8	13.3	13.7	6.0 F	58.7	57.2	63.2	63.2	27.8	45.1	40.6	15.4	4.5
Star Chief	34.2	34.0	12.0	13.8	6.0	23.8	12.5	13.2	6.0 F	58.7	57.2	63.2	63.0	27.8	45.1	40.9	15.4	4.5
Bonneville[3]	34.1	33.8	12.0	13.8	6.0	23.8	12.5	13.2	6.0 F	58.7	57.2	63.0	63.0	27.8	44.9	40.9	15.1	4.5
Tempest	34.0	33.7	10.8	12.4	4.8	26.5	17.4	12.8	6.0	55.2	54.6	58.6	58.2	26.7	44.1	37.8	15.2	4.1
STUDEBAKER-PACKARD CORP.																		
Studebaker Lark	35.3	34.8	12.0	11.5	6.5	28.5	17.5	12.5	6.1 REC	55.5	54.5	59.5	59.0	29.0	43.5	40.0	13.8	5.5
Hawk	34.5	33.8	10.9	9.6	5.5	20.0	17.0	14.0	6.9 BFH	55.0	53.0	59.5	58.0	27.5	44.0	37.0	13.8	5.5

ABBREVIATIONS

[2]—Two door hardtop.
[3]—Four door hardtop sedan.
[5]—Two door convertible.
BFH—Body front hinge pillar cross member.
ELT—Exhaust pipe, bottom of front longitudinals, and transmission cross members.
EM—At bolt head attaching right rear engine mount to frame.
EOP—Engine oil pan.
ES—Exhaust system.
F—Frame.
FCP—Frame center plate.
IS—Not applicable, individual seats.
M—Muffler.
N—None.
PS—Power steering support rod.
REC—Rear engine cross member.
RS—Rear shock absorber.
RSA—Rear suspension assembly.
RSH—Rear spring front hanger.

For Directory of Car Manufacturers listed above, see Page 53

GENERAL ENGINE DATA, PISTONS

PASSENGER CAR MAKE AND MODEL	STANDARD ENGINE														PISTONS							
						Mounting Points											Clearance			Ring Groove Depth		
	Type	Valve Arrangement	Number of Cylinders, Bore and Stroke	Piston Disp.—Cu. In.	Compression Ratio (to 1)	Front	Rear	Taxable HP	Published BHP Maximum at Engine RPM	Published Maximum Torque (lb. ft. at RPM)	Recommended Idle Speed—RPM	Shipping Weight 5-6 Pass., 4 Dr. Sed.	Weight per Cu. In.[1]	Weight per Hp.[1]	HP per Cu. In.	Description and Finish	Weight—Oz. (Piston Only)	Top Land	Skirt		No. 1 Ring	No. 2 Ring	No. 3 Ring
																		Top	Bottom			
AMERICAN MOTORS CORP.																						
Rambler — American (Deluxe & Super)	IL	L	6-3 1/2x4 1/2	195.6	8.00	2	2	23.44	90-3800	160-1600	550	2523	15.46	33.59	.460	Fh,So,Tp,Co	14.00	.0180	.0012	.0009	.1690	.1690	.1730
American (Custom)	IL	IH	6-3 1/2x4 1/2	195.6	8.70	2	2	23.44	125-4200	180-1600	550	2588	15.79	24.70	.639	So,Tp,Co	14.70	.0180	.0012	.0009	.1690	.1690	.1730
Classic-6	IL	IH	6-3 1/2x4 1/2	195.6	8.70	2	2	23.44	127-4200	180-1600	550	2905	17.41	26.81	.649	So,Tp,Co	14.70	.0180	.0012	.0009	.1690	.1690	.1730
Classic-8	V	IH	8-3 1/8x3 1/4	250.0	8.70	2	2	39.20	200-4900	245-2500	550	3237	14.95	18.69	.800	Ss,Tp,Au	18.00	.0300	.0017	.0012	.1870	.1870	.1890
Ambassador	V	IH	8-4x3 1/4	327.0	8.70	2	2	51.20	250-4700	340-2600	550	3343	11.75	15.37	.765	Ss,Tp,Au	23.45	.0300	.0017	.0012	.1870	.1870	.1890
CHECKER MOTORS CORP.																						
Checker — Superba, Marathon	IL	L	6-3 7/16x4 9/16	226.0	7.30	2	2	26.33	80-3100	180-1400	375	3320	16.90	47.75	.354	Fh,Cg,T,An	16.45	.0288	.0025	.0015	.1770	.1770	.1770[2]
CHRYSLER CORP.																						
Chrysler — Newport	V	IH	8-4 1/16x3 5/8	361.0	9.00	2	1	54.30	265-4400	380-2400	500	3710	11.66	15.89	.734	Ss,St,E,Tp	25.30	.0450	.0010	.....	.2300	.2300	.2210
Windsor	V	IH	8-4 1/16x3 5/8	383.0	10.00	2	1	57.80	305-4800	395-3000	500	3730	11.04	13.87	.796	Ss,St,E,Tp	27.20	.0450	.0010	.....	.2370	.2370	.2250
New Yorker	V	IH	8-4 1/16x3 5/8	413.0	10.10	2	1	55.90	350-4600	470-2800	500	4055	11.03	13.01	.847	Ss,St,E,Tp	27.50	.0450	.0010	.....	.2340	.2340	.2230
300-G	V	IH	8-4 1/16x3 5/8	413.0	10.10	2	1	55.90	375-5000	495-2800	750	4260	11.53	12.69	.908	Ss,St,E,Tp	27.50	.0450	.0010	.....	.2340	.2340	.2230
De Soto	V	IH	8-4 1/16x3 5/8	361.0	9.00	2	1	54.30	265-4400	380-2400	500	.....	.....	.....	.734	Ss,St,E,Tp	25.30	.0450	.0010	.....	.2300	.2300	.2210
Dodge — Polara	V	IH	8-4 1/16x3 5/8	361.0	9.00	2	1	54.40	265-4400	380-2400	500	3700	11.63	15.85	.734	Ss,St,E,Tp	25.30	.0450	.0010	.....	.2100	.2100	.2000
Dodge Dart — Seneca, Pioneer, Phoenix-6	IL	IH	6-3 1/16x4 1/4	225.0	8.20	2	1	27.70	145-4000	215-2800	550	3335	17.04	26.45	.644	Ss,St,E,Tp	16.40	.0275	.0010	.....	.1790	.1790	.1810
Seneca, Pioneer, Phoenix-8	V	IH	8-3 7/16x3 1/16	318.0	9.00	2	1	48.90	230-4400	340-2400	500	3515	12.63	17.46	.723	Hs,Sb,E,Tp	20.90	.0315	.0010	.....	.2100	.2100	.2000
Dodge Lancer — 170, 770	IL	IH	6-3 1/16x3 5/8	170.0	8.20	2	1	27.70	101-4400	155-2400	550	2595	18.21	30.64	.594	Ss,St,E,Tp	16.40	.0275	.0010	.....	.1790	.1790	.1810
Imperial — Custom, Crown, Le Baron	V	IH	8-4 1/16x3 5/8	413.0	10.10	2	1	55.90	350-4600	470-2800	500	4740	12.69	14.97	.847	Ss,St,E,Tp	27.50	.0450	.0010	.....	.2340	.2340	.2230
Plymouth — Savoy, Belvedere, Fury-6	IL	IH	6-3 1/16x4 1/4	225.0	8.20	2	1	27.70	145-4000	215-2800	550	3310	16.93	26.28	.644	Ss,St,Tp,E	16.40	.0275	.0010	.....	.1790	.1790	.1810
Savoy, Belvedere, Fury-8	V	IH	8-3 7/16x3 1/16	318.0	9.00	2	1	48.90	230-4400	340-2400	500	3465	12.47	17.24	.723	Hs,Sb,Tp,E	20.90	.0315	.0010	.....	.2100	.2100	.2000
Valiant — V-100, V-200	IL	IH	6-3 1/16x3 5/8	170.0	8.20	2	1	27.70	101-4400	155-2400	550	2590	18.18	30.59	.594	Ss,St,E,Tp	16.40	.0275	.0010	.....	.1790	.1790	.1810
FORD MOTOR CO.																						
Comet	IL	IH	6-3 1/16x2 1/2	144.3	8.70	2	1	29.40	85-4200	134-2000	525	2411	20.17	34.25	.589	Au,So,Tp	17.64	.0171	.0024	.0015	.1820	.1820	.1820
Falcon	IL	IH	6-3 1/16x2 1/2	144.3	8.70	2	1	29.40	85-4200	134-2000	525	2289	19.33	32.81	.589	Au,So,Tp	17.64	.0171	.0024	.0015	.1820	.1820	.1820
Ford — Fairlane, Fairlane 500, Galaxie	IL	IH	6-3 5/8x3 1/16	223.0	8.40	2	1	31.54	135-4000	200-2000	500	3585	18.32	30.26	.605	Au,So,Tp	19.25	.0185	.0028	.0015	.1853	.1853	.1853
Fairlane, Fairlane 500, Galaxie	V	IH	8-3 5/8x3 1/16	292.0	8.80	2	1	45.00	175-4200	279-2200	500	3683	14.33	23.90	.599	Au,So,Tp	19.58	.0130	.0028	.0015	.1973	.1973	.1943
Lincoln Continental	V	IH	8-4 1/16x3 5/8	430.0	10.00	2	1	59.17	300-4100	465-2000	475	4927	12.62	18.09	.698	Co,Ss,Tp	29.80	.0191	.0025	.0012	.2271	.2271	.2086
Mercury — Meteor 600, 800-6	IL	IH	6-3 5/8x3 1/16	223.0	8.40	2	1	31.54	135-4000	200-2000	500	3616	18.46	30.49	.605	Au,So,Tp	19.25	.0142	.0023	.0015	.2051	.2051	.2051
Meteor 600, 800; Monterey-8	V	IH	8-3 5/8x3 1/16	292.0	8.80	2	1	45.00	175-4200	279-2200	500	3714	14.43	24.08	.599	Au,So,Tp	19.58	.0142	.0023	.0015	.2116	.2116	.2061
Thunderbird	V	IH	8-4 1/16x3 5/8	390.0	9.60	2	1	52.49	300-4600	427-2800	500	3958	11.43	14.86	.769	Au,Ss,Tp	24.52	.0196	.0031	.0018	.1925	.1925	.1890
GENERAL MOTORS CORP.																						
Buick — Special	V	IH	8-3 13/16x2 13/16	215.0	8.80	2	1	39.20	155-4600	220-2400	525	2610	14.47	20.06	.721	Cg,Ts,Ds	13.81	.0295	.0008	.0011	.1958	.1978	.1978
Le Sabre	V	IH	8-4 1/16x3 1/16	364.0	10.25	2	1	54.45	250-4400	384-2400	525	4129	12.72	18.52	.687	Cg,Ts,Ds	22.24	.0330	.0011	.0026	.2150	.2175	.2200
Invicta, Electra, Electra 225	V	IH	8-4 1/16x3 15/16	401.0	10.25	2	1	56.11	325-4400	445-2800	525	4179	11.67	14.40	.810	Cg,Ts,Ds	23.84	.0330	.0013	.0028	.2150	.2175	.2175
Cadillac — 60, 62, 63, 75	V	IH	8-4x3 7/8	390.0	10.50	2	1	51.20	325-4800	430-3100	480	.....	.....	.....	.833	Dt,Cg,Ct,Sc	22.56	.0345	.0015	N	.2080	.2080	.2080
Chevrolet — Biscayne, Biscayne Fleetmaster, Bel Air, Impala-6	IL	IH	6-3 15/16x3 1/16	235.5	8.25	2	1	30.40	135-4000	217-2200	475	3495	16.96	29.59	.573	Fh,Ce	18.88	.0375	.0008	.....	.2020	.2020	.2020
Biscayne, Biscayne Fleetmaster, Bel Air, Impala-8	V	IH	8-3 7/16x3	283.0	8.50	2	1	48.00	170-4200	275-2200	475	3500	14.14	23.53	.601	Fh,Ss,Mr	20.40	.0390	.0008	.....	.2177	.2177	.2126
Corvair — 500, 700, 900	HO	IH	6-3 1/16x2 7/16	145.0	8.00	2	1	28.40	80-4400	128-2300	500	2355	19.69	35.69	.552	Ss,Au	14.61	.0265	.0013	N	.1955	.1955	.1965
Corvette	V	IH	8-3 7/16x3	283.0	9.50	2	1	48.00	230-4800	300-3000	475	2905	12.03	14.80	.813	Fh,Au,Mr,Ss	.....	.0375	.0008	.....	.2186	.2186	.2126
Oldsmobile — F-85	V	IH	8-3 13/16x2 13/16	215.0	8.75	2	1	39.20	155-4800	210-3200	550	2566	14.26	19.78	.721	Cg,Tp	14.78	.0305	.0009	.0008	.1978	.1978	.1978
88	V	IH	8-4 1/16x3 1/16	394.0	8.75	1	2	54.00	250-4200	405-2400	460	4024	11.48	18.10	.635	Au,Cg,Tp,St	27.76	.0310	.0015	.0010	.2160	.2160	.2060
Super 88, 98	V	IH	8-4 1/16x3 1/16	394.0	10.00	1	2	54.00	325-4600	435-2800	460	4063	11.58	14.04	.825	Au,Cg,Tp,St	27.76	.0310	.0015	.0010	.2160	.2160	.2060
Pontiac — Catalina, Ventura, Star Chief	V	IH	8-4 1/16x3 3/8	389.0	8.60	2	1	52.80	215-3600	390-2000	500	3720	10.86	19.63	.553	Cg,Ss,St,Tp	24.25	.0275	.0014	.0009	.2110	.2010	.1835
Bonneville	V	IH	8-4 1/16x3 3/8	389.0	8.60	2	1	52.80	235-3600	402-2000	500	3895	11.30	18.70	.604	Cg,Ss,St,Tp	24.25	.0275	.0014	.0009	.2110	.2010	.1835
Tempest	IL	IH	4-4 1/16x3 3/4	194.5	8.60	2	2	26.40	110-3800	190-2000	700	2800	16.97	30.00	.566	Cg,Ss,St,Tp	23.97	.0285	.0014	.0009	.2110	.2010	.1835
STUDEBAKER-PACKARD CORP.																						
Studebaker — Lark-6	IL	IH	6-3x4	169.6	8.50	2	2	21.60	112-4500	154-2000	550	2665	18.66	28.26	.660	Cg,Tp,T	10.60	.0173	SF	SF	.1635	.1485	.1685
Lark-8	V	IH	8-3 5/8x3 1/4	259.2	8.80	2	1	40.60	180-4500	260-2800	550	2941	13.28	19.12	.694	Cg,Tp,Ts	16.21	.0195	SF	SF	.1938	.1938	.1938
Hawk	V	IH	8-3 5/16x3 5/8	289.0	8.80	2	1	40.60	210-4500	300-2800	550	3205	12.82	17.64	.727	Cg,Ts,Tp	16.22	.0195	SF	SF	.1938	.1938	.....

ABBREVIATIONS

1—Shipping weight plus 500 lbs. for passengers, oil, water and gasoline.
2—No 4 ring, .1930; No. 5 ring, .1950.
An—Anodized.
Au—Autothermic.
Ce—Controlled expansion.
Cg—Cam ground.
Co—Conformatic.
Ct—Contoured top.
Ds—Divorced skirt.
Dt—Double "T" slot.
E—Elliptically turned.
Fh—Flat head.
Ho—Horizontally opposed.
Hs—Horizontal slot.
IH—In head.
IL—In line.
L—Valves at side.
Mr—Machined valve relief.
N—None.
Sb—Steel band.
Sc—Stannate coated.
SF—Selective fit.
So—Solid skirt.
Ss—Slipper skirt.
St—Steel struts.
T—"T" slot. Tp—Tin plated.
Ts—Transverse slot.
V—"V" type engine.

For Directory of Car Manufacturers listed above, see Page 53

OPTIONAL ENGINE DATA

PASSENGER CAR MAKE AND MODEL	ENGINE: Type	Valve Arrangement	Number of Cylinders Bore and Stroke	Piston Displacement—Cu. In.	Compression Ratio (to 1)	Published BHP Maximum at Engine RPM	Published Maximum Torque (Lb. ft. at RPM)	Operating Tappet Clearance: Intake	Operating Tappet Clearance: Exhaust	Exhaust System Type	CARBURETOR: Make	CARBURETOR: Model	CARBURETOR: Number Used	CARBURETOR: Type	IGNITION: Distributor Make	IGNITION: Distributor Model	IGNITION: Timing—Cls deg. @ RPM	AXLE RATIO (Standard): Std. Transmission	AXLE RATIO (Standard): Auto. Transmission	Changes From Standard Engine
AMERICAN MOTORS CORP.																				
Rambler — American (Deluxe, Super)	IL	IH	6-3 1/2 x 4 1/4	195.6	8.70	125-4200	180-1600	.012H	.016H	S	Hol	1908-FC	1	S	DR	1112434	8B	2.87	2.87	VA,CR,VC,Car,Dis,IT,AR
CHECKER MOTORS CORP.																				
Checker — Superba, Marathon	IL	IH	6-3 7/8 x 4 5/8	226.0	8.00	122-4000	192-1800	.017H	.023H	S	Cart	AS-2858-S	1	S	AL	IAT-4406	3 1/2B-375	3.73	3.31	VA,CR,VC,Car,Dis,IT
CHRYSLER CORP.																				
Dodge — Polara	V	IH	8-4 1/16 x 3 3/8	383.0	10.00	325-4600	425-2800	Hyd	Hyd	D	Cart	AFB-3152-S	1	FB	AL	IBS-4006-F	7 1/2B-	3.23	3.23	CR,Ex,Car,Dis,IT,AR
Polara	V	IH	8-4 1/16 x 3 3/8	383.0	10.00	330-4800	460-2800	Hyd	Hyd	D	Cart	AFB-2903-S	2	FB	AL	IBS-4006-E	7 1/2B-	N	3.23	Car,Dis,AR
Polara	V	IH	8-4 1/16 x 3 3/8	383.0	10.00	340-5000	440-2800	Hyd	Hyd	D	Cart	AFB-3084-S	2	FB	AL	IBS-4006-E	7 1/2B-	3.23	3.23	Car,Dis,AR
Polara	V	IH	8-4 1/16 x 3 3/8	383.0	10.00	325-4600	425-2800	Hyd	Hyd	D	Cart	AFB-2970-S[2]	2	FB	AL	IBS-4006-F	7 1/2B-	3.23	3.23	Car,Dis
Dodge Dart — Seneca, Pioneer, Phoenix	V	IH	8-4 1/16 x 3 3/8	361.0	9.00	305-4800	395-3000	Hyd	Hyd	D	Cart	AFB-3105-S	1	FB	AL	IBS-4006-F	10B-	3.31	3.31	Ex,Car,Dis,IT,AR
Seneca, Pioneer, Phoenix	V	IH	8-4 1/16 x 3 3/8	383.0	10.00	330-4800	460-2800	Hyd	Hyd	D	Cart	AFB-2903-S	2	FB	AL	IBS-4006-E	7 1/2B-	3.23	3.23	CR,Car,Dis,IT,AR
Seneca, Pioneer, Phoenix	V	IH	8-4 1/16 x 3 3/8	383.0	10.00	325-4600	425-2800	Hyd	Hyd	D	Cart	AFB-2968-S	1	FB	AL	IBS-4006-F	7 1/2B-	3.23	3.23	Car,Dis
Seneca, Pioneer, Phoenix	V	IH	8-4 1/16 x 3 3/8	383.0	10.00	340-5000	440-2800	Hyd	Hyd	D	Cart	AFB-3084-S	2	FB	AL	IBS-4006-E	7 1/2B-	3.23	3.23	Car,Dis
Seneca, Pioneer, Phoenix	V	IH	8-4 1/16 x 3 3/8	383.0	10.00	330-5200	425-3600	Hyd	Hyd	D	Cart	AFB-2970-S[2]	2	FB	AL	IBS-4006-F	7 1/2B-	3.23	3.23	Car,Dis
Seneca, Pioneer, Phoenix	V	IH	8-4 1/16 x 3 3/4	413.0	10.00	350-4600	470-2800	Hyd	Hyd	D	Cart	AFB-3108-S	1	FB	AL	IBS-4006-F	7 1/2B-	3.23	3.23	Car,Dis
Seneca, Pioneer, Phoenix	V	IH	8-4 1/16 x 3 3/4	413.0	10.00	375-5000	465-2800	Hyd	Hyd	D	Cart	AFB-3084-S	2	FB	AL	IBS-4006-E	7 1/2B-	3.23	3.23	Car
Seneca, Pioneer, Phoenix	V	IH	8-4 1/16 x 3 3/4	413.0	10.00	375-5200	450-2800	Hyd	Hyd	D	Cart	AFB-2970-S[2]	2	FB	AL	IBS-4006-F	7 1/2B-	3.23	3.23	Car,Dis
Dodge Lancer — 170, 770	IL	IH	6-3 1/2 x 4 1/4	225.0	8.20	145-4000	215-2800	.010H	.020H	S	Cart	BBS-3098-S	1	S	Chr	2095270	21 B-500	3.55	3.23	Car,Dis
170, 770	IL	IH	6-3 1/2 x 4 1/4	225.0	8.20	196-5200	212-4200	.010H	.020H	D	Cart	AFB-3083-S	1	FB	Chr	2095270	10B-700	3.55	3.23	Ex,Car,IT
Plymouth — Savoy, Belvedere, Fury	V	IH	8-4 1/16 x 3 3/8	361.0	9.00	305-4800	395-3000	Hyd	Hyd	D	Cart	AFB-3105-S	1	FB	AL	IBS-4006-F	10B-	3.31	3.31	VL,Ex,Car,Dis,IT,AR
Savoy, Belvedere, Fury	V	IH	8-4 1/16 x 3 3/8	383.0	10.00	330-4800	460-2800	Hyd	Hyd	D	Cart	AFB-2903-S	2	FB	AL	IBS-4006-E	7 1/2B-	3.23	3.23	CR,Car,Dis,IT,AR
Savoy, Belvedere, Fury	V	IH	8-4 1/16 x 3 3/8	383.0	10.00	325-4600	425-2800	Hyd	Hyd	D	Cart	AFB-2968-S	1	FB	AL	IBS-4006-F	7 1/2B-	3.23	3.23	Car,Dis
Savoy, Belvedere, Fury	V	IH	8-4 1/16 x 3 3/8	383.0	10.00	330-5200	425-3600	Hyd	Hyd	D	Cart	AFB-2790-S[2]	2	FB	AL	IBS-4006-F	7 1/2B-	3.23	3.23	Car
Savoy, Belvedere, Fury	V	IH	8-4 1/16 x 3 3/8	383.0	10.00	340-5000	440-2800	Hyd	Hyd	D	Cart	AFB-3084-S	2	FB	AL	IBS-4006-F	7 1/2B-	3.23	3.23	Car
Savoy, Belvedere, Fury	V	IH	8-4 1/16 x 3 3/4	413.0	10.00	375-5000	465-2800	Hyd	Hyd	D	Cart	AFB-3084-S	2	FB	AL	IBS-4006-F	7 1/2B-	3.23	3.23	Car
Savoy, Belvedere, Fury	V	IH	8-4 1/16 x 3 3/4	413.0	10.00	350-4600	470-2800	Hyd	Hyd	D	Cart	AFB-3108-S	1	FB	AL	IBS-4006-E	7 1/2B-	3.23	3.23	.....
Savoy, Belvedere, Fury	V	IH	8-4 1/16 x 3 3/4	413.0	10.00	375-5200	450-2800	Hyd	Hyd	D	Cart	AFB-2790-S[2]	2	FB	AL	IBS-4006-F	7 1/2B-	3.23	3.23	Car,Dis
FORD MOTOR CO.																				
Comet	IL	IH	6-3 1/2 x 2 1/8	170.0	8.70	101-4400	156-2400	.018H	.018H	S	Hol	1908	1	S	Fo	CIDF-12127-B	6B-500	3.20	3.20	Dis,AR
Falcon	IL	IH	6-3 1/2 x 2 1/8	170.0	8.70	101-4400	156-2400	.018H	.018H	S	Hol	1908	1	S	Fo	CIDF-12127-B	6B-500	3.20	3.50	Car,Dis,AR
Ford — Fairlane, Fairlane 500, Galaxie	V	IH	8-4x3 1/2	352.0	8.90	220-4400	336-2400	Hyd	Hyd	SC	Fo	.....	1	D	F-H	COAF-12127-E	3B-500	3.56	3.00	CR,VL,Dis,AR
Fairlane, Fairlane 500, Galaxie	V	IH	8-4 6/7 x 3 5/32	390.0	9.60	300-4600	427-2800	Hyd	Hyd	D	Fo	.....	1	FB	F-H	CISF-12127-A	3B-500	3.56	3.00	CR,Ex,Car,Dis
Fairlane, Fairlane 500, Galaxie	V	IH	8-4 6/7 x 3 5/32	390.0	9.60	330-5000	427-3200	Hyd	Hyd	D	Fo	.....	1	FB	F-H	CISF-12127-A	3B-500	3.56	3.00	.....
Mercury — Meteor 600, 800; Monterey	V	IH	8-4x3 1/2	352.0	8.90	220-4400	336-2400	Hyd	Hyd	SC	Fo	.....	1	FB	Fo	COAA-12127-K	14B-700	3.56	N	CR,VL,VC,Dis,IT
Meteor 800; Monterey	V	IH	8-4 6/7 x 3 5/32	390.0	9.60	300-4600	427-2800	Hyd	Hyd	D	Fo	.....	1	D	F-H	COAF-12127-A	3B-500	3.56	3.00	CR,VL,Dis
Meteor 600	V	IH	8-4 6/7 x 3 5/32	390.0	9.60	330-5000	427-3200	Hyd	Hyd	D	Fo	.....	1	FB	F-H	CISF-12127-A	3B-500	N	3.00	CR,Ex,Car,Dis
GENERAL MOTORS CORP.																				
Chevrolet — Biscayne, Biscayne Fleetmaster, Bel Air, Impala	V	IH	8-4 1/16 x 3 1/4	348.0	9.50	250-4400	355-2800	Hyd	Hyd	D	Cart	3779180	1	FB	DR	1110948	7B-475	3.56	3.00	.....
Biscayne, Biscayne Fleetmaster, BelAir, Impala	V	IH	8-4 1/16 x 3 1/4	348.0	9.50	280-4800	355-3200	Hyd	Hyd	D	Roc	70130154	3	D	DR	1110948	7B-475	3.36	3.08	CR,Ex,Car,Dis
Biscayne, Biscayne Fleetmaster, BelAir, Impala	V	IH	8-4 1/16 x 3 1/4	348.0	9.50	305-5200	355-3400	Hyd	Hyd	D	Cart	3772600	1	FB	DR	1110948	7B-475	3.36	3.08	Car
Biscayne, Biscayne Fleetmaster, BelAir, Impala	V	IH	8-4 1/16 x 3 1/4	348.0	11.25	340-5800	362-3600	.008	.018	D	Cart	3772600	1	FB	DR	1110948	7B-475	3.36	3.55	Car,AR
Biscayne, Biscayne Fleetmaster, BelAir, Impala	V	IH	8-4 1/16 x 3 1/4	348.0	11.25	350-6000	364-3600	.008	.018	D	Roc	70139735	1	FB	DR	1110919	12B-600	3.70	N	CR,VL,Dis,IT,AR
Biscayne, Biscayne Fleetmaster, BelAir, Impala	V	IH	8-4 6/7 x 3 1/4	348.0	11.25	360-5800	409-3600	.008	.018	D	Cart	7020029	3	D	DR	1110919	12B-600	3.70	N	Car
Tempest	V	IH	8-3 1/2 x 2 1/16	409.0	11.25	360-5800	409-3600	.008	.018	D	Cart	7020029	1	FB	DR	1110919	12B-600	3.36	3.36	Car,AR
	V	IH	8-3 1/2 x 2 1/16	215.0	8.80	155-4600	220-2400	Hyd	Hyd	SC	Roc	7019863	1	D	DR	1110977	5B-600	3.55	3.55	CA,CR,Car,Dis,IT

ABBREVIATIONS

[2]—Front only; rear, AFB-2791-S.
[4]—Front only; center, 7013020; rear, 7013017.
[5]—Front only; center, 7013974; rear, 7013975.

AL—Autolite.
AR—Axle ratio.
B—Before top center.
CA—Cylinder arrangement.
Car—Carburetor.
Cart—Carter.
Chr—Chrysler.
CR—Compression ratio.
D—Dual.
Dis—Distributor. **DR**—Delco-Remy.
Ex—Exhaust system.
FB—Four barrel.
F-H—Ford or Holley.
Fo—Ford.
H—Hot.
Hol—Holley.
Hyd—Hydraulic valve lifters, automatic take-up.
IH—In head.
IL—In line.
IT—Ignition timing.
N—None.
Roc—Rochester.
S—Single.
SC—Single with crossover.
V—"V" type engine.
VA—Valve arrangement.
VC—Valve tappet clearance.
VL—Valve lifters.

For Directory of Car Manufacturers listed above, see Page 53

PISTON RINGS, PISTON PINS, AND CONNECTING RODS

PASSENGER CAR MAKE AND MODEL	PISTON RINGS											PISTON PIN							CONNECTING RODS						
	Function			Compression				Oil							Type			Clearance						Bearing			
	No. 1	No. 2	No. 3	Material	Coating	Width	Gap	Material	Coating	Width	Gap	Material	Length	Diameter	Locked in—	Location	Bushing Material	In Piston	In Rod	Material	Weight (oz.)	Length (center to center)	Material	Overall Length	Clearance	End Play
AMERICAN MOTORS CORP.																										
Rambler — American, Classic-6	C	C	O	Al	Ch[1]	.0933[2]	.015	St	Ch	.0245	.035	1016	2.7500	.8597	R	N	.....	Ppf	PF	1145	23.00	6.6250	Mbs	.9600	.0013	.010
Classic-8	C	C	O	Al	Ch[3]	.0778	.015	St	Ch	.0245	.035	1016	3.1870	.9307	R	N	.....	Ppf	PF	1145	27.60	6.3750	Mbs[4]	.8670	.0018	.008
Ambassador	C	C	O	Al	Ch[3]	.0778	.015	St	Ch	.0245	.035	1016	3.1870	.9307	R	N	.....	Ppf	PF	1145	27.60	6.3750	Cla	.8670	.0018	.008
CHECKER MOTORS CORP.																										
Checker — Superba, Marathon	C	C	C[5]	.....	Ch[3]	.0930[6]	.015	Al	.....	.2500	.014	1019	2.8125	.8590	F	R	Br	.0002	.0004	1041	32.24	7.0000	Dsb	1.1250	.0027	.008
CHRYSLER CORP.																										
Chrysler — Newport, Windsor	C	C	O	CI	Tp	.0780	.019	CI	.....	.1860	.019	HMS	3.5650	1.0940	R	N	.....	.0006	.0011	DFS	28.60	6.3800	Bsb	.9270	.0010	.013
New Yorker	C	C	O	CI	Tp	.0780	.019	CI	.....	.1860	.019	HMS	3.5650	1.0940	R	N	.....	.0006	.0011	DFS	29.80	6.7700	Bsb	.9270	.0010	.013
300-G	C	C	O	CI	Tp	.0780	.019	CI	.....	.1860	.019	HMS	3.5650	1.0940	R	N	.....	.0006	.0010	DFS	29.80	6.7700	Bsb	.9270	.0015	.013
De Soto	C	C	O	CI	Tp	.0780	.019	CI	.....	.1860	.019	HMS	3.5650	1.0940	R	N	.....	.0006	.0011	DFS	28.60	6.3800	Bsb	.9270	.0010	.013
Dodge — Polara	C	C	O	CI	Tp	.0780	.019	CI	.....	.1860	.019	HMS	3.5650	1.0940	R	N	.....	.0006	.0011	DFS	28.60	6.3800	Bsb	.9270	.0010	.013
Dodge Dart — Seneca, Pioneer, Phoenix-6	C	C	O	.....	Tp[1]	.0780	.015	.....	Ch	.1860	.015	HMS	2.9650	.9008	R	N	.....	.0006	.0011	DFS	27.34	6.6990	Bsb	.9850	.0010	.009
Seneca, Pioneer, Phoenix-8	C	C	O	CI	Tp	.0780	.015	CI	.....	.1860	.015	HMS	2.9950	.9842	F	R	Brs	.0003	.0004	HMFS	25.60	6.1250	Bmg	.8430	.0010	.010
Dodge Lancer — 170, 770	C	C	O	CI	Tp	.0780	.015	CI	.....	.1860	.015	HMS	2.9650	.9008	R	N	.....	.0006	.0011	DFS	25.68	5.7070	Bsb	.9850	.0010	.009
Imperial — Custom, Crown, Le Baron	C	C	O	CI	Tp	.0780	.019	CI	.....	.1860	.019	HMS	3.5650	1.0940	R	N	.....	.0006	.0011	DFS	29.80	6.7700	Bsb	.9270	.0010	.013
Plymouth — Savoy, Belvedere, Fury-6	C	C	O	.....	Tp[1]	.0780	.015	.....	Ch	.1860	.015	HMS	2.9650	.9008	R	N	.....	.0006	.0011	DFS	27.30	6.6990	Bsb	.9850	.0010	.009
Savoy, Belvedere, Fury-8	C	C	O	.....	Tp	.0780	.015	CI	.....	.1860	.015	HMS	2.9950	.9842	F	R	Brs	.0003	.0004	HMFS	25.60	6.1250	Bmg	.8430	.0010	.010
Valiant — V-100, V-200	C	C	O	CI	Tp	.0780	.015	CI	.....	.1860	.015	HMS	2.9650	.9008	R	N	.....	.0006	.0011	DFS	25.68	5.7070	Bsb	.9850	.0010	.009
FORD MOTOR CO.																										
Comet	C	C	O	ACI	Ch[7]	.0780	.015	St	Ch	.1875	.033	AS	3.0200	.9120	R	P	.....	.0002	.....	SF	18.65	4.8550	.....	.8050	.0016	.007
Falcon	C	C	O	ACI	Ch[7]	.0780	.015	St	Ch	.1875	.035	AS	3.0200	.9120	R	P	.....	.0002	.....	SF	18.65	4.8550	.....	.8050	.0016	.007
Ford — Fairlane, Fairlane 500, Galaxie-6	C	C	O	CI	Ch[7]	.0933	.015	St	Ch	.1875	.035	5015	3.0200	.9122	F	R	Br	.0002	.0002	SF	27.04	6.2600	Bsb	1.0934	.0011	.006
Fairlane, Fairlane 500, Galaxie-8	C	C	O	CI	Ch[7]	.0778	.015	St	Ch	.1875	.035	5015	3.0200	.9122	F	R	Br	.0002	.0002	SF	24.21	6.3220	Cla	.7410	.0015	.011
Lincoln Continental	C	C	O	CI	Ch[7]	.0778[8]	.020	St	Ch	.1875	.038	5015	3.4900	.9751	R	N	.....	.0003	N	1041	27.80	6.8000	Cla	.8610	.0011	.010
Mercury — Meteor 600, 800	C	C	O	ACI	Ch[9]	.0933	.015	St	Ch	.1875	.035	5015	3.0200	.9122	F	R	Br	.0002	.0002	SF	29.63	6.2550	Bsb	1.0340	.0011	.006
Meteor 600, 800; Monterey	C	C	O	ACI	Ch[9]	.0778	.015	St	Ch	.1875	.035	5015	3.0200	.9122	F	R	Br	.0002	.0002	SF	24.05	6.3220	Cla	.7410	.0015	.011
Thunderbird	C	C	O	ACI	Ch[7]	.0778[8]	.020	St	Ch	.1875	.035	5015	3.1600	.9752	F	R	Br	.0002	.0002	SF	25.47	6.4880	Cla	.7405	.0019	.011
GENERAL MOTORS CORP.																										
Buick — Special	C	C	O	CI	Ch[1]	.0775	.015	St	Ch	.1840	.025	1118	2.8700	.8749	R	N	.....	.0001	.0010	1141	17.55	5.6600	Dsb	.7370	.0012	.010
Le Sabre	C	C	O	CI	Lub	.0775	.020	St	N	.1840	.025	1118	3.5200	.9996	R	N	.....	.0001	.0010	1141	23.20	6.1000	Als	.8200	.0013	.009
Invicta, Electra, Electra 225	C	C	O	CI	Lub	.0775	.020	St	N	.1840	.025	1118	3.5200	.9996	R	N	.....	.0001	.0010	1141	24.38	6.2200	Als	.8200	.0013	.009
Cadillac — 60, 62, 63, 75	C	C	O	CI	Ch[1]	.0781	.015	St	Ch	.1875	.015	1045	3.0930	1.0000	R	N	.....	.0008	PF	1041	22.56	6.5000	.....	.8175	.0013	.011
Chevrolet — Biscayne, Biscayne Fleetmaster, Bel Air, Impala-6	C	C	O	ACI	WR	.0933	.012	St	Ch	.1880	.035	CS	3.1850	.8663	R	N	.....	.0002	N	SF	28.03	6.8125	Bsb	1.0080	.0017	.008
Biscayne, Biscayne Fleetmaster, Bel Air, Impala-8	C	C	O	ACI	Ch[10]	.0778	.015	St	Ch	.1880	.035	CS	3.0000	.9272	R	N	.....	.0002	N	DFS	19.02	5.7000	Bsb	.8170	.0017	.011
Corvair — 500, 700, 900	C	C	O	ACI	WR	.0775	.015	ACI	N	.1863	.015	AS	2.6400	.8001	R	N	.....	.0002	N	DFS	13.73	4.7200	Bsb	.6490	.0017	.008
Corvette	C	C	O	ACI	Ch	.0778[11]	.015	St	Ch	.1940	.035	CS	3.0000	.9272	R	N	.....	.0002	N	DFS	19.02	5.7000	Bsb	.8170	.0017	.011
Oldsmobile — F-85	C	C	O	CI	Ch[3]	.0788[12]	.015	St	Ch	.2252	.035	1118	2.8700	.8749	R	N	.....	.0004	.0010	1045	17.89	5.6600	Dsb	.7370	.0012	.009
88, Super 88, 98	C	C	O	CI	Ch[1]	.0778[2]	.018	St	Ch	.2280	.035	1016	3.1260	.9805	F	R	Br	.0004	.0004	1139	34.55	6.9980	Als	.8260	.0015	.007
Pontiac — Catalina, Ventura, Star Chief, Bonneville	C	C	O	CI	Ch[1]	.0780	.021[13]	St	Ch	.1840	.025	1117	3.2500	.9802	R	N	.....	.0004	PF	1139	29.34	6.6250	Dsb	.8800	.0015	.009
Tempest	C	C	O	CI	Ch[1]	.0780	.021[13]	St	Ch	.1840	.025	1117	3.2500	.9802	R	N	.....	.0004	PF	1139	29.24	6.6250	Dsb	.8300	.0015	.007
STUDEBAKER-PACKARD CORP.																										
Studebaker — Lark-6	C	C	O	CI	Ch[3]	.0930[15]	.012	CI	Bl	.1560	.012	8620	2.6250	.7500	R	N	.....	.0047	N	1041	19.04	6.3750	Bsb	.9050	.0013	.007
Lark-8	C	C	O	CI	Ch[14]	.0780	.012	CI	Gr	.1870	.012	5120	3.0620	.8750	R	N	.....	.0047	N	1141	23.71	6.6250	Bsb	.8430	.0015	.011
Hawk	C	C	O	CI	Gr	.0780	.012	CI	Gr	.1870	.012	5120	3.0625	.8750	R	N	.....	.0002	N	1141	23.73	6.6250	Bsb	.8430	.0013	.011

ABBREVIATIONS

1—Upper only; lower, Parco-Lubrite.
2—Upper only; lower, .0930.
3—Upper only; lower, ferrox.
4—Aluminum block engines use a sintered copper-lead alloy, steel backed bearing.
5—No. 4, oil; No. 5, compression.
6—Nos. 2 and 3, .1250; No. 5, .156.
7—Upper only; lower, phosphate.
8—Upper only; lower, .0935.
9—Upper only; lower, oxide.
10—Upper only; lower, wear resistant.
11—Upper only; lower, .0775.
12—Upper only; lower, .0785.
13—Upper only; lower, .019.
14—Upper only; lower, granoseal.
15—Upper only; lower, .1250.
ACI—Alloy cast iron.
Al—Alloy iron.
Als—Aluminum, steel backed.
AS—Alloy steel.
Bl—Blued.
Bmg—Bi-metal grid.
Br—Bronze.
Brs—Bronze, steel backed.
Bsb—Lead base babbitt, steel backed.
C—Compression.
Ch—Chrome plate.
CI—Cast iron.
Cla—Copper-lead alloy, steel backed.
CS—Chromium steel.
DFS—Drop forged steel.
Dsb—Durex, steel backed.
F—Floating.
Gr—Granoseal.
HMS—High manganese steel.
HMFS—High manganese forging steel.
Lub—Lubrite.
Mbs—Micro-babbitt, steel backed.
N—None.
O—Oil.
P—Piston.
Pf—Press fit.
Ppf—Palm press fit.
R—Connecting rod.
SF—Steel forging.
St—Steel.
Tp—Tin plated.
WR—Wear resistant coating.

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CRANKSHAFTS, CAMSHAFTS

PASSENGER CAR MAKE AND MODEL	CRANKSHAFT												CAMSHAFT							
					Main Bearing										Bearings			Timing Chain		
							Journal Diameter and Bearing Effective Length													
	Material	Vibration Dampener Type	End Thrust Taken Up by Bearing	Crankshaft End Play	Material	Clearance	No. 1	No. 2	No. 3	No. 4	No. 5	Connecting Rod Crankpin Journal Diameter	Location	Material	Material	Number	Type of Drive	Number of Links	Width	Pitch
AMERICAN MOTORS CORP.																				
Rambler — American, Classic-6	DFS	RF	1	.0055	Mbs[1]	.0013	2.4795x1.1250	2.4795x1.1250	2.4795x1.1250	2.4795x1.1531	None	2.0952	RS	CIA	Mbs	4	Ch	60	1.0000	.375
Classic-8, Ambassador	DFS	RF	1	.0050	Mbs	.0016	2.4992x .9560	2.4992x .9500	2.4992x .9500	2.4992x .9500	2.4992x .9500	2.2487	Cen	CIA	Mbs	5	Ch	62	.8750	.375
CHECKER MOTORS CORP.																				
Checker — Superba, Marathon	1046	BR	1	.0050	Bsb	.0034	2.3750x1.0620	2.3750x1.3120	2.3750x1.3120	2.3750x1.4840	None	2.0620	RS	1019	Bsb	4	Ch	46	.8750	.500
CHRYSLER CORP.																				
Chrysler — Newport, Windsor	DFS	RD	3	.0045	Lbs[2]	.0010	2.6300x .9400	2.6300x .9400	2.6300x1.2200	2.6300x .9400	2.6300x .9400	2.3750	Cen	HCI	Lbs	5	Ch	50	.8800	.500
New Yorker, 300-G	DFS	RD	3	.0045	Lbs[2]	.0010	2.7500x .9400	2.7500x .9400	2.7500x1.2200	2.7500x .9400	2.7500x .9400	2.3750	Cen	HCI	Lbs	5	Ch	50	.8800	.500
De Soto	DFS	RD	3	.0045	Lbs[2]	.0010	2.6300x .9400	2.6300x .9400	2.6300x1.2200	2.6300x .9400	2.6300x .9400	2.3750	Cen	HCI	Lbs	5	Ch	50	.8800	.500
Dodge	DFS	RD	3	.0045	Lbs[2]	.0010	2.6300x .9400	2.6300x .9400	2.6300x1.2200	2.6300x .9400	2.6300x .9400	2.3750	Cen	HCI	Lbs	5	Ch	50	.8800	.500
Dodge Dart — Seneca, Pioneer, Phoenix-8	DFS	RD	3	.0045	Lbs[2]	.0010	2.7500x1.0340	2.7500x1.0340	2.7500x1.2540	2.7500x1.0340	None	2.1870	RS	HCI	Lbs	4	Ch	50	.8800	.500
Seneca, Pioneer, Phoenix-8	DFS	N	3	.0045	Lbs[2]	.0010	2.5000x .8700	2.5000x .8700	2.5000x1.1500	2.5000x .8700	2.5000x1.5600	2.1250	Cen	HCI	Lbs	5	Ch	68	1.0200	.380
Dodge Lancer — 170, 770	DFS	RD	3	.0045	Lbs[2]	.0010	2.7500x1.0340	2.7500x1.0340	2.7500x1.2540	2.7500x1.0340	None	2.1870	RS	HCI	Lbs	4	Ch	50	.8800	.500
Imperial — Custom, Crown, Le Baron	DFS	RD	3	.0045	Lbs[2]	.0010	2.7500x .9400	2.7500x .9400	2.7500x1.2200	2.7500x .9400	2.7500x .9400	2.3750	Cen	HCI	Lbs	5	Ch	50	.8800	.500
Plymouth — Savoy, Belvedere, Fury-6	DFS	RD	3	.0045	Lbs[2]	.0010	2.7500x1.0340	2.7500x1.0340	2.7500x1.2540	2.7500x1.0340	None	2.1870	RS	HCI	Lbs	4	Ch	50	.8800	.500
Savoy, Belvedere, Fury-8	DFS	RD	3	.0045	Lbs[2]	.0010	2.5000x .8700	2.5000x .8700	2.5000x1.1500	2.5000x .8700	2.5000x1.5600	2.1250	Cen	HCI	Lbs	5	Ch	68	1.0200	.380
Valiant — V-100, V-200	DFS	RD	3	.0025	Lbs[2]	.0010	2.7500x1.0340	2.7500x1.0340	2.7500x1.2540	2.7500x1.0340	None	2.1870	RS	HCI	Lbs	4	Ch	50	.8800	.500
FORD MOTOR CO.																				
Comet	CIA	N	3	.0060	Mbs	.0011	2.2485x1.0150	2.2485x1.0150	2.2485x1.2700	2.2485x1.0150	None	2.1235	RS	SAI	Bsb	4	Ch	50	.8750	.375
Falcon	CIA	N	3	.0060	Mbs	.0011	2.2485x1.0150	2.2485x1.0150	2.2485x1.2700	2.2485x1.0150	None	2.1235	RS	SAI	Bsb	4	Ch	50	.8750	.375
Ford — Fairlane, Fairlane 500, Galaxie-6	CIA	RFI	3	.0060	Bsb[3]	.0015	2.4984x1.1000	2.4984x1.1000	2.4984x1.3540	2.4984x1.1000	None	2.2984	RS	SAI	Bsb	4	Ch	56	1.0000	.375
Fairlane, Fairlane 500, Galaxie-8	CIA	RFI	3	.0060	Bsb[3]	.0018	2.4984x .9070	2.4984x .9070	2.4984x1.1190	2.4984x .9070	2.4984x .9070	2.1884	Cen	SAI	Bsb	5	Ch	48	.8600	.500
Lincoln Continental	MAI	RFI	3	.0060	Clt	.0013	2.8999x .9550	2.8999x .9550	2.8999x1.1190	2.8999x .9550	2.8999x .9550	2.5997	Cen	MAI	Lbs	5	Ch	52	.8640	.500
Mercury — Meteor 600, 800-6	CIA	RFI	3	.0060	Bsb[3]	.0015	2.4984x1.1000	2.4984x1.1000	2.4984x1.3540	2.4984x1.3250	None	2.2984	RS	SAI	Bsb	4	Ch	56	1.0000	.375
Meteor 600, 800; Monterey-8	CIA	RFI	3	.0060	Bsb[3]	.0018	2.4984x .9070	2.4984x .9070	2.4984x1.1210	2.4984x .9070	2.2984x .9070	2.1884	Cen	SAI	Bsb	5	Ch	56	1.0000	.375
Thunderbird	CIA	RFI	3	.0060	Cls	.0021	2.7488x .9070	2.7488x .9070	2.7488x1.1190	2.7488x .9070	2.7488x .9070	2.4384	Cen	SAI	Bsb	5	Ch	48	.8600	.500
GENERAL MOTORS CORP.																				
Buick — Special	PMI	RA	3	.0060	Dsb	.0013	2.2992x .8020	2.2992x .8020	2.2992x .8210	2.2992x .8020	2.2992x .8020	2.0000	Cen	CIA	Bsb	5	Ch	54	.8750	.375
Le Sabre	1145	RA	5	.0060	Msb[4]	.0013	2.4985x .9400	2.4985x .9400	2.4985x .9400	2.4985x .9400	2.4985x1.1990	2.2495	Cen	CIA	Bsb	5	Ch	52	.8640	.500
Invicta, Electra, Electra 225	1145	RA	3	.0060	Msb[4]	.0013	2.4985x .9400	2.4985x .9400	2.4985x .8910	2.4985x .9400	2.4985x1.2000	2.2495	Cen	CIA	Bsb	5	Ch	52	.8640	.500
Cadillac — 60, 62, 63, 75	1145	RA	5	.0040	Msb[4]	.0017	2.6250x .9070	2.6250x .9070	2.6250x .9070	2.6255x .9070	2.6250x1.6220	2.2500	Cen	CI	Bsb	5	Ch	46	.6875	.500
Chevrolet — Biscayne, Biscayne Fleetmaster, Bel Air, Impala-6	SF	RFI	3	.0065	Bsb	.0016[5]	2.6840x1.0630	2.7150x .9070	2.7460x .9790	2.7770x1.1890	None	2.3115	RS	CIA	Bsb	4	G	N	.....	.....
Biscayne, Biscayne Fleetmaster, Bel Air, Impala-8	SF	N	5	.0040	Bsb	.0021	2.2963x .7620	2.2983x .7620	2.2983x .7620	2.2983x .7620	2.2983x1.1690	1.9995	Cen	CIA	Bsb	5	Ch	46	.8750	.500
Corvair — 500, 700, 900	DFS	N	1	.0040	Bsb	.0025	2.0983x .7850	2.0983x .7520	2.0988x .7520	2.0988x .7520	None	1.7995	Cen	CIA	CM	4	G	N	.....	.....
Corvette	SF	RM	5	.0040	Bsb	.0021	2.2983x .7620	2.2983x .7620	2.2983x .7620	2.2983x .7520	2.2983x1.1690	1.9995	Cen	CIA	Bsb	5	Ch	46	.8750	.500
Oldsmobile — F-85	PMI	RA	3	.0060	Dbs	.0013	2.2986x .8020	2.2986x .8020	2.2986x1.0570	2.2986x .8020	2.2986x .8020	2.0000	Cen	CIA	Bsb	5	Ch	54	.8750	.375
88, Super 88, 98	1145	RA	5	.0060	Msb[4]	.0013[6]	3.0000x1.0680	3.0000x .8180	3.0000x .8180	3.0000x .8180	3.0000x1.6900	2.5000	Cen	CIA	Bsb	5	Ch	48	.8440	.500
Pontiac — Catalina, Ventura, Star Chief, Bonneville	PMI	RFI	4	.0060	Dsb[7]	.0018[9]	3.0000x .9400	3.0000x .9400	3.0000x .9400	3.0000x1.1800	3.0000x1.5900	2.2500	Cen	CIA	Lbs	5	Ch	60	.8800[8]	.375
Tempest	PMI	RFI	4	.0060	Dsb[7]	.0018[9]	3.0000x .9400	3.0000x .9400	3.0000x .9400	3.0000x1.1800	3.0000x1.5900	2.2500	LS	CIA	Lbs	5	Ch	60	.8800[8]	.375
STUDEBAKER-PACKARD CORP.																				
Studebaker — Lark-6	1046	RMD	1	.0045	Bsb	.0014[10]	3.0620x1.3450	3.0620x1.1250	3.0620x1.1250	3.0620x1.5310	None	1.8120	RS	CIA	Bsb	4	G	N	.....	.....
Lark, Hawk-8	1046	RMD	1	.0045	Bsb	.0017	2.5000x1.3090	2.5000x .9060	2.5000x .9060	2.5000x .9060	2.5000x1.5460	2.0000	Cen	CIA	Bsb	5	G	N	.....	.....

ABBREVIATIONS

1—Aluminum block engines use sintered copper-lead alloy, steel backed bearings.
2—No. 3 bearing is tin base babbitt, steel backed.
3—No. 4 bearing is copper-lead alloy, steel backed.
4—No. 5 bearing is Durex, steel backed.
5—Front two bearings only; rear two, .0018.
6—No. 1 and 2 only; No. 3 and 4, .0016; No. 5, .0027.
7—Moraine, steel backed bearing used in lower half of No. 4.
8—Morse chain only; Link Belt chain, 1.0000.
9—No. 1 bearing, .0015.
10—No. 1 bearing, .0011.
BR—Bonded rubber.
Bsb—Babbitt, steel backed.
Cen—Center, between cylinder banks.
Ch—Chain.
CI—Cast iron.
CIA—Cast iron alloy.
Cls—Copper-lead alloy, steel backed.
Clt—Copper-lead alloy, steel backed, tin plated.
CM—Crankcase machined for bearing surfaces, no inserts.
Dbs—Durex with babbitt overlay, steel backed.
DFS—Drop forged steel.
Dsb—Durex, steel backed.
G—Gear.
HCI—Hardenable cast iron.
Lbs—Lead base babbitt, steel backed.
LS—Left side of engine block.
MAI—Moulded alloy iron.
Mbs—Micro-babbitt, steel backed.
Msb—Moraine, steel backed.
N—None.
PMI—Pearlitic malleable iron.
RA—Rubber absorption.
RD—Non adhesion rubber dynamic.
RF—Rubber friction.
RFI—Rubber floated.
RM—Rubber mounted.
RMD—Rubber mounted disc.
RS—Right side of engine block.
SAI—Special alloy iron.
SF—Steel forging.

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VALVES, INTAKE AND EXHAUST

PASSENGER CAR MAKE AND MODEL	Hydraulic Lifters	Special Provision for Valve Rotation (Intake or Exhaust)	Rocker Ratio—to-1	INTAKE											EXHAUST									
				Material	Overall Length	Actual Overall Head Diameter	Seat Angle (Deg.)	Stem		Lift (In.)	Springs				Material	Overall Length	Actual Overall Head Diameter	Seat Angle (Deg.)	Stem		Lift (In.)	Springs			
								Diameter (In.)	Guide Clearance		Pressure (lb.)		Length (in.)						Diameter (In.)	Guide Clearance		Pressure (lb.)		Length (in.)	
											Valve Closed	Valve Open	Valve Closed	Valve Open								Valve Closed	Valve Open	Valve Closed	Valve Open
AMERICAN MOTORS CORP.																									
Rambler American (Deluxe and Super)	NA	N	N	1041	4.781	1.469	45	.3410	.0026	.324	39.0	78.5	1.750	1.440	Sil	4.784	1.281	45	.3410	.0026	.322	39.0	78.5	1.750	1.440
American (Custom)	NA	N	1.463	1041	4.791	1.594	45	.3415	.0025	.366	67.5	120.0	1.813	1.438	21-4N	4.791	1.343	45	.3410	.0030	.361	67.5	120.0	1.813	1.438
Classic-6 (Cast Iron Block)	NA	N	1.460	1041	4.791	1.594	45	.3415	.0025	.366	67.5	120.0	1.813	1.438	21-4N	4.791	1.343	45	.3410	.0030	.361	67.5	120.0	1.813	1.438
Classic-6 (Aluminum Block)	Std	N	1.600	1041	4.791	1.594	45	.3415	.0025	.388	67.5	120.0	1.813	1.438	21-4N	4.808	1.250	45	.3410	.0030	.388	67.5	120.0	1.813	1.438
Classic-8	NA	Bo	1.500	Sil	4.859	1.787	30	.3720	.0020	.375	88.0	155.0	1.813	1.438	21-4N	4.859	1.406	45	.3720	.0020	.375	88.0	155.0	1.813	1.438
Ambassador	Std	Bo	1.500	Sil	4.859	1.787	30	.3720	.0020	.375	88.0	155.0	1.813	1.438	21-4N	4.859	1.406	45	.3720	.0020	.375	88.0	155.0	1.813	1.438
CHECKER MOTORS CORP.																									
Checker Superba, Marathon	NA	N	N	3140	5.187	1.515	30	.3437	.0021	.284	50.0	106.5	1.656	1.375	.....	5.172	1.328	44	.3440	.0041	.284	50.0	106.5	1.656	1.375
CHRYSLER CORP.																									
Chrysler Newport, Windsor, New Yorker	Std	E	1.500	AS	4.870	2.080	45	.3730	.0020	.390	100.0	195.0	1.860	1.470	21-4N	4.890	1.600	45	.3720	.0030	.390	100.0	195.0	1.860	1.470
300-G	Std	E	1.500	AS	4.868	2.080	45	.3725	.0030	.430	105.0	205.0	1.860	1.430	21-4N	4.888	1.600	45	.3720	.0030	.430	105.0	205.0	1.860	1.430
De Soto	Std	E	1.500	AS	4.870	2.080	45	.3730	.0020	.390	100.0	195.0	1.860	1.470	21-4N	4.890	1.600	45	.3720	.0030	.390	100.0	195.0	1.860	1.470
Dodge Polara	Std	E	1.500	AS	4.870	2.080	45	.3730	.0020	.390	100.0	195.0	1.860	1.470	21-4N	4.890	1.600	45	.3720	.0030	.390	100.0	195.0	1.860	1.470
Dodge Dart Seneca, Pioneer, Phoenix-6	NA	E	1.500	1041	4.774	1.620	45	.3730	.0020	.371	83.0	177.0	1.690	1.310	21-4N	4.797	1.360	46	.3720	.0030	.364	83.0	177.0	1.690	1.310
Seneca, Pioneer, Phoenix-8	NA	E	1.500	1041	4.600	1.840	45	.3730	.0020	.370	83.0	177.0	1.690	1.310	21-4N	4.540	1.560	45	.3720	.0030	.386	83.0	177.0	1.690	1.310
Dodge Lancer 170, 770	NA	E	1.500	AS	4.774	1.620	46	.3720	.0020	.371	83.0	177.0	1.690	1.310	21-4N	4.797	1.360	46	.3720	.0030	.364	83.0	177.0	1.690	1.310
Imperial Custom, Crown, Le Baron	Std	E	1.500	AS	4.870	2.080	45	.3730	.0020	.390	100.0	195.0	1.860	1.470	21-4N	4.890	1.600	45	.3720	.0030	.390	100.0	195.0	1.860	1.470
Plymouth Savoy, Belvedere, Fury-6	NA	E	1.500	1041	4.774	1.620	46	.3720	.0020	.375	83.0	177.0	1.690	1.310	21-4N	4.797	1.360	46	.3720	.0030	.368	83.0	177.0	1.690	1.310
Savoy, Belvedere, Fury-8	NA	E	1.500	1041	4.600	1.840	45	.3720	.0020	.370	83.0	177.0	1.690	1.310	21-4N	4.540	1.560	45	.3720	.0030	.368	83.0	177.0	1.690	1.310
Valiant V-100, V-200	NA	E	1.500	1041	4.774	1.620	46	.3720	.0020	.371	83.0	177.0	1.690	1.310	21-4N	4.797	1.360	46	.3720	.0030	.364	83.0	177.0	1.690	1.310
FORD MOTOR CO.																									
Comet	NA	Bo	1.500	1047	4.260	1.467	45	.3100	.0017	.344	52.0	117.0	1.585	1.222	Aus	4.260	1.266	45	.3090	.0027	.344	52.0	117.0	1.585	1.222
Falcon	NA	Bo	1.500	1047	4.260	1.467	45	.3100	.0017	.344	52.0	117.0	1.585	1.222	Aus	4.260	1.266	45	.3090	.0027	.344	52.0	117.0	1.585	1.222
Ford Fairlane, Fairlane 500, Galaxie-6	NA	Bo	1.430	SA	5.110	1.780	45	.3420	.0017	.369	75.0	169.0	1.780	1.390	Aus	5.090	1.513	45	.3402	.0035	.369	75.0	169.0	1.780	1.390
Fairlane, Fairlane 500, Galaxie-8	NA	Bo	1.430	SA	5.090	1.647	45	.3420	.0017	.360	75.0	169.0	1.780	1.390	Aus	5.090	1.513	45	.3402	.0035	.360	75.0	169.0	1.780	1.390
Lincoln Continental	Std	Bo	1.760	Sil	5.363	1.963	45	.3715	.0015	.408	70.0	190.0	1.640	1.230	Aus	5.383	1.653	45	.3705	.0025	.408	70.0	190.0	1.640	1.230
Mercury Meteor 600, 800-6	NA	Bo	1.430	SA	5.110	1.780	45	.3420	.0017	.369	75.0	169.0	1.780	1.390	Aus	5.090	1.513	45	.3402	.0035	.369	75.0	169.0	1.780	1.390
Meteor 600, 800; Monterey-8	NA	Bo	1.430	SA	5.090	1.647	45	.3420	.0017	.360	75.0	169.0	1.780	1.390	Aus	5.090	1.513	45	.3402	.0035	.360	75.0	169.0	1.780	1.390
Thunderbird	Std	Bo	1.760	SA	5.446	2.030	45	.3715	.0017	.408	79.5	199.0	1.820	1.420	Aus	5.426	1.559	45	.3697	.0035	.408	79.0	199.0	1.820	1.420
GENERAL MOTORS CORP.																									
Buick Special	Std	N	1.600	NCA	4.605	1.500	45	.3410	.0018	.383	64.0	168.0	1.640	1.260	Sil	4.605	1.313	45	.3405	.0023	.383	64.0	168.0	1.640	1.260
Le Sabre	Std	N	1.600	NCA	4.785	1.875	45	.3725	.0025	.443	42.0[1]	96.0[1]	1.600[1]	1.160[1]	Sil	4.785	1.500	45	.3720	.0030	.439	42.0[1]	96.0[1]	1.600[1]	1.160[1]
Invicta, Electra, Electra 225	Std	N	1.600	NCA	4.785	1.875	45	.3725	.0025	.439	42.0[1]	96.0[1]	1.600[1]	1.160[1]	Sil	4.785	1.500	45	.3720	.0030	.441	42.0[1]	96.0[1]	1.600[1]	1.160[1]
Cadillac 60, 62, 63, 75	Std	N	1.650	1041	4.794	1.875	44	.3420	.0015	.451	62.5	160.0	1.946	1.496	81940	4.815	1.500	44	.3418	.0018	.451	62.5	160.0	1.946	1.496
Chevrolet Biscayne, Biscayne Fleetmaster, Bel Air, Impala-6	Std	N	1.477	CS	6.386	1.875	31	.3414	.0019	.328	65.0	163.0	1.858	1.528	HAS	4.923	1.500	46	.3414	.0019	.328	65.0	163.0	1.858	1.528
Biscayne, Biscayne Fleetmaster, Bel Air, Impala-8	Std	N	1.500	CS	4.912	1.720	46	.3419	.0019	.334	80.0	160.0	1.696	1.366	HAS	4.923	1.500	46	.3414	.0024	.334	80.0	160.0	1.696	1.366
Corvair 500, 700, 900	Std	N	1.500	Ast	4.499	1.340	45	.3419	.0019	.314	61.0	145.0	1.508	1.148	HAS	4.504	1.240	45	.3409	.0024	.344	61.0	145.0	1.508	1.148
Corvette	Std	N	1.500	CS	4.912	1.720	46	.3419	.0019	.399	74.0	164.0	1.696	1.306	HAS	4.923	1.500	46	.3414	.0024	.399	74.0	164.0	1.696	1.306
Oldsmobile F-85	Std	N	1.600	3145[2]	4.868	1.522	45	.3430	.0018	.384	75.0	167.0	1.750	1.350	82152	4.856	1.353	45	.3420	.0018	.384	75.0	167.0	1.750	1.350
88, Super 88, 98	Std	N	1.800	3145[2]	4.999	1.875	45	.3430	.0018	.435	90.0	182.0	1.837	1.437	82152	4.999	1.562	45	.3943	.0023	.437	90.0	182.0	1.837	1.437
Pontiac Catalina, Ventura, Star Chief, Bonneville	Std	N	1.500	MMS	4.850	1.880	30	.3400	.0030	.330	80.0	171.0	1.530	1.200	XCR	4.840	1.600	45	.3400	.0035	.330	80.0	171.0	1.530	1.200
Tempest	Std	N	1.500	MMS	4.850	1.880	30	.3400	.0030	.330	80.0	171.0	1.530	1.200	XCR	4.840	1.600	45	.3400	.0035	.330	80.0	171.0	1.530	1.200
STUDEBAKER-PACKARD CORP.																									
Studebaker Lark-6	NA	N	1.500	8645	5.250	1.593	45	.3430	.0025	.375	50.0	110.0	2.031	1.671	2112N	5.250	1.406	45	.3430	.0025	.375	50.0	110.0	2.031	1.671
Lark, Hawk-8	NA	N	1.500	8645	5.156	1.656	45	.3430	.0025	.375	50.0	110.0	2.031	1.671	2112N	5.156	1.531	45	.3430	.0025	.375	50.0	110.0	2.031	1.671

ABBREVIATIONS

1—Outer spring only; inner spring, 25.5 at 1.690 with valve closed and 76.0 at 1.250 with valve open

2—Thompson valve only; Eaton valve, 8645.

AS—Aluminized steel.
Ast—Alloy steel.
Aus—Cast austenitic steel.
Bo—Both intake and exhaust.
CS—Carbon steel.
E—Exhaust only.
HAS—High alloy steel.
MMS—Manganese-Moly steel.
N—None.
NA—Not available.
NCA—Nickel-Chrome alloy steel.
Sil—Silichrome steel.
Std—Standard.

For Directory of Car Manufacturers listed above, see Page 53

VALVE TIMING, LUBRICATION, AND EXHAUST SYSTEMS

PASSENGER CAR MAKE AND MODEL	VALVE TIMING: Operating Tappet Clearance Intake	Operating Tappet Clearance Exhaust	Timing Mark Location	TIMING: Intake Opens (B.T.C.)	Intake Closes (A.B.C.)	Intake Duration (Deg.)	Exhaust Opens (B.B.C.)	Exhaust Closes (A.T.C.)	Exhaust Duration (Deg.)	Valve Opening Overlap (Deg.)	LUBRICATION SYSTEM: Lubrication—Type Mains, Conn. Rod, Camshaft Brgs.	Piston Pins	Tappets	Timing Gear or Chain	Cylinder Walls	Oil Pump Type	Normal Oil Pressure Lb. at Rpm.	Oil Pressure Sending Unit	Type Oil Intake	Oil Filter System	Filter Replacement	Capacity of Crankcase, Less Filter—qt.	Range in Oil Grade Recommended (S.A.E. Nos.) Summer to Subzero	EXHAUST SYSTEM: Type	Muffler Type	Exhaust Pipe Diameter (In.)	Tail Pipe Diameter
AMERICAN MOTORS CORP.																											
Rambler American (Deluxe and Super)	.016C	.018C	VD	10.0	58.0	248.0	49.0	19.0	248.0	29.0	P	S	S	S	SH	G	50-3000	E	St	PF	Co	4	20-5W	Si	RF	1¾	1½
American (Custom)	.012H	.016H	VD	12.5	51.5	244.0	53.5	10.5	244.0	23.0	P	S	S	S	SH	G	50-3000	E	St	PF	Co	4	20-5W	Si	RF	2	1¾
Classic-6 (Cast Iron Block)	.012H	.016H	VD	12.5	51.5	244.0	53.5	10.5	244.0	23.0	P	S	P	S	SH	G	55-3000	E	St	PF	Co	4	20-5W	Si	RF	2	1¾
Classic-6 (Aluminum Block)	Hyd	Hyd	VD	15.0	55.0	250.0	55.0	15.0	250.0	30.0	P	S	P	S	SH	G	55-3000	E	St	FF	Co	4	20-5W	Si	RF	2	1¾
Classic-8	.012H	.014H	VD	12.5	51.5	244.0	53.5	10.5	244.0	23.0	P	S	P	PJ	SH	G	55-3000	E	St	FF	Co	4	20-5W	Si	RF	1⅞	1¾
Ambassador	Hyd	Hyd	VD	12.5	51.5	244.0	53.5	10.5	244.0	23.0	P	S	P	PJ	SH	G	55-3000	E	St	FF	Co	4	20-5W	Si	RF	1⅞	1¾
CHECKER MOTORS CORP.																											
Checker Superba, Marathon	.014H	.014H	VD	2.0	42.0	224.0	42.0	8.0	230.0	10.0	P	S	P[1]	S	Sp	G	20-375	M	F	PF	Co	5	30-5W	Si	RF	2	1¾
CHRYSLER CORP.																											
Chrysler Newport, Windsor, New Yorker	Hyd	Hyd	.....	15.0	57.0	252.0	57.0	15.0	252.0	30.0	P	Mjs	P	J	Mjs	R	55-2000	E	St	FF	Co	5	30-5W	SC	RF	2½	2
300-G	Hyd	Hyd	.....	20.0	68.0	268.0	60.0	28.0	268.0	48.0	P	Mjs	P	J	Mjs	R	55-2000	E	St	FF	Co	5	30-5W	DC	RF	2½	2
De Soto	Hyd	Hyd	.....	15.0	57.0	252.0	57.0	15.0	252.0	30.0	P	Mjs	P	J	Mjs	R	55-2000	E	St	FF	Co	5	30-5W	SC	RF	2½	2
Dodge	Hyd	Hyd	.....	15.0	57.0	252.0	57.0	15.0	252.0	30.0	P	Mjs	P	J	Mjs	R	55-2000	E	St	FF	Co	5	30-5W	SC	RF	2½	2
Dodge Dart Seneca, Pioneer, Phoenix-6	.010H	.020H	.....	8.0	44.0	232.0	48.0	TDC	228.0	8.0	P	Mjs	S	J	Mjs	R	55-2000	E	St	FF	Co	4	30-5W	Si	RF	2	1¾
Seneca, Pioneer, Phoenix-8	.010H	.018H	.....	17.0	47.0	244.0	55.0	9.0	244.0	26.0	P	Mjs	P	J	Mjs	R	50-2000	E	St	Sh	El	5	30-5W	SC	RF	2¼	2
Dodge Lancer 170, 770	.010H	.020H	.....	8.0	44.0	232.0	48.0	TDC	228.0	8.0	P	Mjs	S	J	Mjs	R	55-2000	E	St	FF	Co	4	30-5W	Si	RF	1¾	1½
Imperial	Hyd	Hyd	.....	15.0	57.0	252.0	57.0	15.0	252.0	30.0	P	Mjs	P	J	Mjs	R	55-2000	E	St	FF	Co	5	30-5W	D	RF	2	1¾
Plymouth Savoy, Belvedere, Fury-6	.010H	.020H	.....	8.0	44.0	232.0	48.0	TDC	228.0	8.0	P	Mjs	S	J	Mjs	R	55-2000	E	St	FF	Co	4	30-5W	Si	RF	2	1¾
Savoy, Belvedere, Fury-8	.010H	.018H	.....	17.0	47.0	244.0	55.0	9.0	244.0	26.0	P	Mjs	P	J	Mjs	R	50-2000	E	St	Sh	El	5	30-5W	SC	RF	2¼	2
Valiant V-100, V-200	.010H	.020H	.....	8.0	44.0	232.0	48.0	TDC	228.0	8.0	P	Mjs	S	J	Mjs	R	55-2000	E	St	FF	Co	4	30-5W	Si	RF	1¾	1½
FORD MOTOR CO.																											
Comet	.018H	.018H	.....	15.0	37.0	232.0	45.0	7.0	232.0	22.0	P	OM	Gr	S	PS	.....	50-2000	E	St	FF	Co	3½	30-10W	Si	RF	1¾	1½
Falcon	.018H	.018H	.....	15.0	37.0	232.0	45.0	7.0	232.0	22.0	P	OM	Gr	S	PS	.....	50-2000	E	St	FF	Co	3½	30-10W	Si	RF	1¾	1½
Ford Fairlane, Fairlane 500, Galaxie-6	.019H	.019H	CD	23.0	59.0	262.0	71.5	10.5	262.0	33.5	P	OM	Gr	S	Ips	GR	60-2000	E	St	FF	Co	4	30-10W	Si	RF	2	2
Fairlane, Fairlane 500, Galaxie-8	.018H	.018H	.....	12.0	54.0	246.0	58.0	8.0	246.0	20.0	P	OM	Gr	S	Ips	R	50-2000	E	St	FF	Co	5	30-10W	SC	RF	2[4]	2
Lincoln Continental	Hyd	Hyd	VD	22.0	68.0	270.0	63.0	27.0	270.0	49.0	P	Omg	P	RP	Ips	R	60-2000	E	St	FF	Co	5	30-10W	DC	RF	1¾	1¾
Mercury Meteor 600, 800-6	.019H	.019H	CD	23.0	59.0	262.0	71.5	10.5	262.0	33.5	P	OM	Gr	S	Ips	GR	60-2000	E	St	FF	Co	4	30-10W	Si	RF	2	2
Meteor 600, 800; Monterey-8	.018H	.018H	.....	12.0	54.0	246.0	58.0	8.0	246.0	20.0	P	OM	Gr	S	Ips	R	50-2000	E	St	FF	Co	5	30-10W	SC	RF	2[4]	2
Thunderbird	Hyd	Hyd	.....	26.0	64.0	270.0	67.0	23.0	270.0	49.0	P	OM	P	S	Ips	R	60-2000	E	St	FF	Co	5	30-10W	DC	RF	2	2
GENERAL MOTORS CORP.																											
Buick Special	Hyd	Hyd	HB	29.0	71.0	280.0	67.0	33.0	280.0	62.0	P	S	P	SN	SN	G	35-2400	E	St	FF	El	4	20-5W	SC	RF	1⅝[5]	1⅝
Le Sabre	Hyd	Hyd	HB	31.0	77.0	288.0	69.0	41.0	290.0	72.0	P	S	P	Dr	SN	G	40-1600	E	St	FF	El	4	20-5W	SC	RF	2½	2
Invicta, Electra, Electra 225	Hyd	Hyd	HB	33.0	77.0	290.0	75.0	44.0	299.0	77.0	P	S	P	Dr	SN	G	40-1600	E	St	FF	El	4	20-5W	SC	RF	2½	2
Cadillac 60, 62, 63, 75	Hyd	Hyd	VD	39.0	105.0	324.0	85.0	59.0	324.0	98.0	P	S	P	Mcf	IJ	G	35-30[6]	E	St	FF	El	4	20-5W	SC	RF	2½	2½
Chevrolet Biscayne, Bel Air, Impala-6	Hyd	Hyd	Fly	16.0	48.0	244.0	46.5	17.5	244.0	33.5	P	S	P	NS	Pjs	G	35-2000	E	St	PF	El	5	20-5W	Si	RF	2	1⅞
Biscayne Fleetmaster-6	.009H	.016H	Fly	1.0[7]	39.0	220.0	42.0	9.0	231.0	8.0	P	S	P	NS	Pjs	G	35-2000	E	St	PF	El	5	20-5W	Si	RF	2	1⅞
Biscayne, Biscayne Fleetmaster, Bel Air, Impala-8	Hyd	Hyd	FP	18.0	54.0	252.0	52.0	20.0	252.0	38.0	P	S	P	NS	Pjs	G	45-2000	E	St	FF	El	4	20-5W	SC	RF	2	1⅞
Corvair 500, 700, 900	Hyd	Hyd	CP	43.0	93.0	316.0	87.0	69.0	336.0	112.0	P	S	P	NS	Psp	G	35-2000	E	St	FF	Co	4	30-10W	SC	RF	1⅞	1½
Corvette	Hyd	Hyd	VD	12.5	57.5	250.0	54.5	15.5	250.0	28.0	P	S	P	NS	Psp	G	35-2000	E	St	FF	El	5	20-5W	D	RF	2	1⅞
Oldsmobile F-85	Hyd	Hyd	.....	22.0	58.0	.....	60.0	20.0	.....	.....	P	S	P	S	S	G	30-2400	E	St	FF	Co	4	20-5W	SC	RF	1⅝[5]	1⅝
88	Hyd	Hyd	CB	14.0	50.0	.....	54.0	16.0	.....	.....	P	S	P	P	P	G	40-50[6]	E	St	FF	Co	4	20-5W	SC	RF	2½	2¼
Super 88, 98	Hyd	Hyd	CB	11.0	59.0	.....	59.0	20.0	.....	.....	P	S	P	P	P	G	40-50[6]	E	St	FF	Co	4	20-5W	SC	RF	2½	2¼
Pontiac Catalina, Ventura, Star Chief, Bonneville	Hyd	Hyd	CP	14.0	58.0	252.0	48.0	24.0	252.0	38.0	P	S	P	MJ	MJ	G	35-2600	E	F	FF	Co	4	20W-5W	SC	RF	2½	2
Tempest	Hyd	Hyd	CP	14.0	58.0	252.0	48.0	24.0	252.0	38.0	P	S	P	MJ	MJ	G	35-2600	E	F	FF	Co	4	20W-5W	SC	RF	1¾[8]	1½
STUDEBAKER-PACKARD CORP.																											
Studebaker Lark-6	.024H	.024H	VD	15.0	50.6	245.6	55.6	10.0	245.6	25.0	P	S	P	DJ	DJ	G	30-2000	E	St	PF	EC	5	30-5W	Si	RF	1¾	1¾
Lark-8	.024H	.024H	VD	11.0	54.6	245.6	51.6	14.0	245.6	25.0	P	S	P	DJ	DJ	G	30-2000	E	St	PF	EC	5	30-5W	SC	RF	2[4]	1¾
Hawk	.024H	.024H	VD	11.0	54.6	245.6	51.6	14.0	245.6	25.0	P	S	P	DJ	DJ	G	30-2000	M	St	PF	El	5	30-5W	DC	RF	2[4]	1¾

ABBREVIATIONS

1—Exhaust only; intake, splash.
2—Main only; branch, 2.
3—Main only; branch, 1¾.
4—Main only; branch, 1⅞.
5—Main only; branch, 1⅝.
6—Miles per hour.
7—After top center.
8—Main only; branch, 1⅛.
C—Cold.
CB—Crankshaft balancer.
CD—Crankshaft damper.
Co—Complete.
CP—Crankshaft pulley.
D—Dual. DC—Dual with crossover.
DJ—Directed jet.
Dr—Drip from front camshaft bearing.
E—Electric.
EC—Both element and complete type used.
El—Element.
F—Floating.
FF—Full flow.
Fly—Flywheel.
FP—Front pulley.
G—Gear.
Gr—Gravity.
GR—Gear or rotor.
H—Hot.
HB—Harmonic balancer.
Hyd—Hydraulic valve lifters; automatic take-up.
IJ—Intermediate jet.
Ips—Indexed pressure stream.
J—Jet.
M—Mechanical.
Mcf—Metered centrifugal flow.
MJ—Metered jet.
Mjs—Metered jet spray.
NS—Nozzle sprayed.
OM—Oil mist.
Omg—Oil mist and gravity.
P—Pressure.
PF—Partial flow.
PJ—Pressure jet.
Pjs—Pressure jet sprayed.
PS—Pressure stream.
Psp—Pressure sprayed.
R—Rotary.
RF—Reverse flow.
RP—Reduced pressure.
S—Splash.
SC—Single with crossover.
Sh—Shunt.
SH—Squirt holes in connecting rod.
Si—Single.
SN—Splash and nozzle.
Sp—Spurt. St—Stationary.
TDC—Top dead center.
VD—Vibration damper.

For Directory of Car Manufacturers listed above, see Page 53

FUEL AND COOLING SYSTEMS

PASSENGER CAR MAKE AND MODEL	FUEL SYSTEM													COOLING SYSTEM												
				Fuel Pump		Carburetor						Air Cleaner Type		Radiator Cap Relief Valve Pressure (lb.)	Thermostat		By-Pass Recirculation Type	Radiator Core Type	Capacity		Full Length Water Jackets	Water All Around Cylinder	Radiator Hose					
	Induction Type	Fuel Tank Capacity (Gal.)	Fuel Filter Type	Pressure Range (lb.)	Vacuum Booster	Make	Model Number	Number Used	Type	Barrel Size (In.)	Choke Type	Standard	Optional		Type	Starts to Open at (Deg.)			With Heater (qt.)	Without Heater (qt.)			Lower		Upper		By-Pass	
																							Number and Type	Inside Diameter	Number and Type	Inside Diameter	Number and Type	Inside Diameter
AMERICAN MOTORS CORP.																												
Rambler — American (Deluxe and Super)	Car	20	Cer	4-5½	Std	Cart	YF-2014-S	1	SB	1.4400	Aut	DE	OB	13	Ch	180	N	TF	12.0	11.0	Y	N	1 Mo	1¼	1 Mo	1½	N	.....
American (Custom)	Car	20	Cer	4-5½	Std	Hol	1908-FC	1	SB	1.4400	Aut	OB	N	13	Ch	195	N	TF	11.0	10.0	Y	N	1 Mo	1¼	1 Mo	1½	N	.....
Classic-6 (Cast Iron Block)	Car	20	Cer	4-5½	Std	Hol	1908-FC	1	SB	1.4375	Aut	DE	OB	13	Ch	195	N	TF	11.0	10.0	Y	N	1 Mo	1¼	1 Mo	1½	N	.....
Classic-6 (Aluminum Block)	Car	20	Cer	4-5½	Std	Hol	1908-FC	1	SB	1.4375	Aut	DE	OB	13	Ch	195	N	TF	10.5	9.5	N	N	1 Mo	1¼	1 Mo	1½	N	.....
Classic-8	Car	20	PE	4-5½	Std	Hol	2040	1	DT	1.4375	Aut	DE	N	13	Ch	180	In	TF	20.0	19.0	Y	Y	1 Mo	1½	1 Mo	1¾	N	.....
Ambassador	Car	20	PE	4-5½	Std	Hol	2040	1	DT	1.4375	Aut	DE	N	13	Ch	180	In	TF	19.0	18.0	Y	Y	1 Mo	1½	1 Mo	1¾	N	.....
CHECKER MOTORS CORP.																												
Checker — Superba, Marathon	Car	22	Cer	3	Std	Zen	O-12469	1	SB	1.2500	Aut	DE	OB	4	Ch	170	Ex	C-T	13.0	12.0	Y	Y	1 Mo	1½	1 Mo	1½	N	.....
CHRYSLER CORP.																												
Chrysler — Newport	Car	23	PE	4-5	N	Str	WWC3-188	1	DT	1.5625	Aut	DE	N	14	CP	180	In	TS	17.0	16.0	N	Y	1 Mo	1¾[2]	1 Mo	1½	N	.....
Windsor	Car	23	PE	4-5	N	Cart	BBD-2923-SA	1	DT	1.5625	Aut	DE	N	14	CP	180	In	TS	17.0	16.0	N	Y	1 Mo	1¾[2]	1 Mo	1½	N	.....
New Yorker	Car	23	PE	4-5	N	Cart	AFB-3108-S	1	FB	1.4375[1]	Aut	DE	N	14	CP	180	In	TS	17.0	16.0	N	Y	1 Mo	1¾[2]	1 Mo	1½	N	.....
300-G	Car	23	PE	4-5	N	Cart	AFB-2903-S	2	FB	1.4375[3]	Aut	DE	N	14	CP	180	In	TS	17.0	16.0	N	Y	1 Mo	1¾	1 Mo	1½	N	.....
De Soto	Car	20	PE	4-5	N	Str	WWC3-188	1	DT	1.5625	Aut	DE	N	14	CP	180	In	TS	17.0	16.0	N	Y	1 Mo	1¾	1 Mo	1½	N	.....
Dodge — Polara	Car	20	PE	4-5	N	Str	WWC3-188	1	DT	1.5625	Aut	DE	N	14	CP	180	In	TS	17.0	16.0	N	Y	1 Mo	1¾[2]	1 Mo	1½	N	.....
Dodge Dart — Seneca, Pioneer, Phoenix-6	Car	20	P	4-5	N	Cart	BBS-3098-S	1	SB	1.6875	Aut	DE	N	14	CP	180	In	TS	17.0	16.0	N	Y	1 Mo	1¾[2]	1 Mo	1½	N	.....
Seneca, Pioneer, Phoenix-8	Car	20	PE	4-5	N	Str	WW15-434	1	DT	1.4375	Aut	DE	N	14	CP	180	Ex	TS	13.0	12.0	N	Y	1 Mo	1½	1 Mo	1½	1 S	.....
Dodge Lancer — 170, 770	Car	13	P	4-5	N	Cart	BBS-3093-S	1	SB	1.5625	Aut	DE	N	14	CP	180	Ex	TS	21.0	20.0	Y	Y	1 Mo	1½	1 Mo	1½	1 Mo	.....
Imperial — Custom, Crown, Le Baron	Car	23	PE	4-5	N	Cart	AFB-3108-S	1	FB	1.4375[1]	Aut	DE	N	14	CP	180	Ex	TS	12.0	11.0	N	Y	1 Mo	1½	1 Mo	1½	1 S	.....
Plymouth — Savoy, Belvedere, Fury-6	Car	20	PE	4-5	N	Cart	BBS-3098-S	1	SB	1.6875	Aut	DE	N	14	CP	180	In	TS	17.0	16.0	N	Y	1 Mo	1¾	1 Mo	1½	N	.....
Savoy, Belvedere, Fury-8	Car	20	PE	4-5	N	C-S	BBD-2921-S[5]	1	DT	1.4375	Aut	DE	N	14	CP	180	Ex	TS	13.0	12.0	N	Y	1 Mo	1½	1 Mo	1½	1 S	.....
Valiant — V-100, V-200	Car	13	P	4-5	N	Cart	BBS-3093-S	1	SB	1.5625	Aut	DE	N	14	CP	180	Ex	TS	21.0	20.0	Y	Y	1 Mo	1½	1 Mo	1½	1 Mo	.....
FORD MOTOR CO.																			12.0	11.0	N	Y	1 Mo	1½	1 Mo	1½	1 S	.....
Comet	Car	14	PE	4-5	Std	Hol	1908	1	SB	1.4370	Aut	DE	N	14	.....	178	N	TF	9.3	8.7	Y	Y	1 Mo	1¼	1 Mo	1¼	N	.....
Falcon	Car	14	PE	4-5	Std	Hol	1904	1	SB	1.4370	Man	DE	N	14	.....	178	N	TF	9.3	8.7	Y	Y	1 Mo	1¼	1 Mo	1¼	N	.....
Ford — Fairlane, Fairlane 500, Galaxie-6	Car	20	PE	4-5	Std	Hol	.....	1	SB	1.5625	Man	DE	N	14	CP	178	In	TF	16.0	15.0	Y	Y	1 Mo	1¾	1 Mo	1½	N	.....
Fairlane, Fairlane 500, Galaxie-8	Car	20	PE	4-5	Std	Fo	.....	1	DT	1.4375	Aut	DE	N	14	CP	178	Ex	TF	20.0	19.0	Y	Y	1 Mo	1¾	1 Mo	1¾	1 S	.....
Lincoln Continental	Car	21	P	5-6	N	Cart	ABD	1	DT	1.5620	Aut	DE	N	14	Ch	178	Ex	TF	25.0	22.0	Y	Y	1 Mo	1¾	1 Mo	1¾	1 S	.....
Mercury — Meteor 600, 800-6	Car	20	PE	4-5	Std	Hol	.....	1	SB	1.5625	Man	DE	N	14	CP	178	In	TF	16.0	15.0	Y	Y	1 Mo	1¾	1 Mo	1½	N	.....
Meteor 600, 800; Monterey-8	Car	20	PE	4½-5½	Std	Fo	.....	1	DT	1.4375	Aut	DE	N	14	CP	178	Ex	TF	20.0	19.0	Y	Y	1 Mo	1¾	1 Mo	1¾	1 S	.....
Thunderbird	Car	20	PE	4½-5½	N	Fo	.....	1	FB	1.5620	Aut	DE	N	14	CP	178	Ex	TF	20.5	19.5	Y	Y	1 Mo	1¾	1 Mo	1¾	1 S	.....
GENERAL MOTORS CORP.																												
Buick — Special	Car	16	P	4-5¼	N	Roc	2GC	1	DT	1.3125	Aut	DE	N	15	Ch	168	Ex	TC	13.5	12.0	N	Y	1 Mo	1½	1 Mo	1½	N	.....
Le Sabre	Car	20	P	5-6¼	N	R-S	2GC[6]	1	DT	1.4375	Aut	DE	N	15	Ch	170	In	TC	18.5	17.0	N	Y	1 Mo	1¾[8]	1 Mo	1¾[8]	N	.....
Invicta, Electra, Electra 225	Car	20	P	5-6¼	N	R-C	4GC[7]	1	FB	1.5625[3]	Aut	DE	N	15	Ch	170	In	TC	18.5	17.0	N	Y	1 Mo	1¾[8]	1 Mo	1¾[8]	N	.....
Cadillac — 60, 62, 63	Car	21	.....	5¼-6½	N	R-C	7019030[9]	1	FB	1.4375[3]	.....	DE	N	14	Ch	176	In	TC	19.3	18.7	Y	Y	1 Mo	1¾	1 Mo	1¾	N	.....
75	Car	21	.....	5¼-6½	N	R-C	7019030[9]	1	FB	1.4375[3]	.....	DE	N	14	Ch	176	In	TC	20.9	18.7	Y	Y	1 Mo	1¾	1 Mo	1¾	N	.....
Chevrolet — Biscayne, Biscayne Fleetmaster, Bel Air, Impala-6	Car	20	MS	3½-4½	N	Roc	7013003	1	SB	1.5625	Aut	OW	OB	13	Bp	170	In	TC	18.0	17.0	Y	Y	1 Mo	1¾	1 Mo	1½	N	.....
Biscayne, Biscayne Fleetmaster, Bel Air, Impala-8	Car	20	MS	5¼-6½	N	Roc	7019007	1	DT	1.4375	Aut	DE	N	13	Bp	170	In	TC	18.5	17.5	Y	Y	1 Mo	1¾	1 Mo	1½	N	.....
Corvair — 500, 700, 900	Car	14	MS	5¼-6½	N	Roc	7019101	2	SB	1.2500	Man	OW	N	AC	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Corvette	Car	16½	MS	5¼-6½	N	Cart	3779176	1	FB	1.3125	Aut	OW	DE	13	Bp	170	In	ACF	16.5	15.5	Y	Y	1 Mo	1¾	1 Mo	1½	N	.....
Oldsmobile — F-85	Car	16	PE	4-5¼	N	Roc	2GC	1	DT	1.3125	Aut	DE	N	15	Bp	170	In	TF	12.5	11.0	Y	Y	1 Mo	1½	1 Mo	1½	1 S	.....
88	Car	20	PE	5-6	Opt	Roc	2GC	1	DT	1.6875	Aut	DE	N	15	Ch	170	In	TC	20.3	19.3	Y	Y	1 Mo	1¾	1 Mo	1½	N	.....
Super 88, 98	Car	20	PE	5-6	Opt	Roc	4GC	1	FB	1.5625[3]	Aut	DE	N	15	Ch	170	In	TC	20.3	19.3	Y	Y	1 Mo	1¾	1 Mo	1½	N	.....
Pontiac — Catalina, Ventura, Star Chief	Car	25	PE	5¼-6½	N	Roc	7019060	1	DT	1.4380	Aut	DE	N	16	Ch	170	In	TC	19.5	18.5	Y	Y	1 Mo	1¾	1 Mo	1¾	N	.....
Bonneville	Car	25	PE	5¼-6½	N	Cart	AFB-3123-S	1	FB	1.4380[3]	Aut	DE	N	16	Ch	170	In	TC	19.5	18.5	Y	Y	1 Mo	1¾	1 Mo	1¾	N	.....
Tempest	Car	15½	P	4-5¼	N	Roc	7019061	1	SB	1.5700	Man	DE	N	14	Ch	170	In	TC	12.6	11.6	Y	Y	1 Mo	1¾	1 Mo	1½	N	.....
STUDEBAKER-PACKARD CORP.																												
Studebaker — Lark-6	Car	18	PE	3½-5½	N	Cart	AS-3159-S	1	SB	1.2500	Aut	DE	OB	13	Ch	170	In	CT	12.0	11.0	Y	N	1 Mo	1¼	1 Mo	1¼	N	.....
Lark-8	Car	18	PE	3½-5½	N	Str	WW6-123-A	1	DT	1.2500	Aut	DE	OB	13	Ch	170	In	CT	18.0	17.0	Y	Y	1 Mo	1½	1 Mo	1½	N	.....
Hawk	Car	18	Cer	3½-5½	N	Str	WW6-123-A	1	DT	1.2500	Aut	DE	OB	13	Ch	170	In	CT	18.0	17.0	Y	Y	1 Mo	1½	1 Mo	1½	N	.....

ABBREVIATIONS

1—Primary only; secondary, 1.5625.
2—Water pump end only; radiator end, 1½.
3—Primary only; secondary, 1.6875.
4—Cars built in St. Louis use a BBD-2921-S.
5—Carter only; Stromberg, WW15-43.
6—Rochester only; Stromberg, WW.
7—Rochester only; Carter, AFB.
8—Water pump end only; radiator end, 1¾.
9—Rochester only; Carter, AFB-3177-S.
AC—Air cooled by forced air supply from centrifugal blower.
ACF—Aluminum cross flow.
Aut—Automatic.
Bp—Bypass.
Car—Carburetor.
Cart—Carter.
Cer—Ceramic.
Ch—Choke.
CP—Choke pellet.
CT—Cellular-tubular.
C-T—Cellular tube and fin.
C-S—Carter or Stromberg.
DE—Dry element.
DT—Dual throat.
Ex—External.
FB—Four-barrel.
Fo—Ford.
Hol—Holley.
In—Internal.
Man—Manual.
Mo—Molded.
MS—Metal strainer.
N—None.
OB—Oil bath.
Opt—Optional.
OW—Oil wetted.
P—Plastic.
PE—Paper element.
R-C—Rochester or Carter.
Roc—Rochester.
R-S—Rochester or Stromberg.
S—Straight.
SB—Single barrel.
Std—Standard.
Str—Stromberg.
TC—Tube and center.
TF—Tube and fin.
TS—Tube and spacer.
Y—Yes.
Zen—Zenith.

For Directory of Car Manufacturers listed above, see Page 53

FAN, BATTERY, AND ELECTRICAL SUPPLY SYSTEM

PASSENGER CAR MAKE AND MODEL	FAN				BATTERY						ELECTRICAL SUPPLY SYSTEM													
											Generator				Regulator									
																		Cut-out Relay		Regulated		Voltage Test Conditions	
	Number of Blades	Diameter (in.)	Ratio—Fan to Crankshaft rev.	Bearing Type	Make	Model	Voltage Rating	Total Number of Plates	Amp. Hour Rating	Terminal Grounded	Make	Model	Type	Ratio—Gen. to Cr's rev. (To—1)	Cut-in—Engine RPM	Make	Model	Type	Closing Voltage at Generator R.P.M.	Reverse Current to Open (amp.)	Voltage	Current	Temperature (deg.)	Load
AMERICAN MOTORS CORP.																								
Rambler American (Deluxe and Super)	4	14	1.22	B	AL	11-MS-40	12	42	40	N	AL	GJO-7101A	Sh	2.08	580	AL	VBO-6221C-1	CV	12.5-13.5-1200	3-5	14.5	25	H	10 amp
American (Custom), Classic-6	4	14	1.22	B	AL	11-MS-45	12	42	45	N	DR	1100324	Sh	2.08	615	DR	1119122	CV	12.8-1280	1-3½	14.5	25	H	10 amp
Classic-8	4	18	.92	B	AL	11-HS-50	12	54	50	N	AL	GJO-7101A	Sh	2.08	580	AL	VBO-6201B	CV	12.5-13.5-1350	3-5	14.5	30	H	10 amp
Ambassador	4	18	.92	B	AL	11-HS-60	12	66	60	N	AL	GJP-7101A	Sh	2.34	580	AL	VBO-6201A	CV	12.5-13.5-1350	3-5	14.5	35	H	10 amp
CHECKER MOTORS CORP.																								
Checker Superba, Marathon	4	16½	1.40	B	Wil	H-11-50	12	54	50	N	AL	GJP-7103A	.....	2.15	662	AL	VBO-6201A-1	CV	12.6-13.6-1360	3-5	12.0	40	50F	10 amp
CHRYSLER CORP.																								
Chrysler Newport, Windsor	4	18	.95	B	AGW	11-HS-59B[1]	12	66	59	N	Chr[3]	2095060	TP	2.32	375	Chr	2095700	V	NA	NA	13.7-14.3	NA	70F	15 amp
New Yorker	4	18	.95	B	A-W	12-HB-70B[2]	12	78	70	N	Chr[3]	2095060	TP	2.32	375	Chr	2095700	V	NA	NA	13.7-14.3	NA	70F	15 amp
300-G	7	18	.95	B	A-W	12-HB-70B[2]	12	78	70	N	Chr[3]	2095060	TP	2.32	375	Chr	2095700	V	NA	NA	13.7-14.3	NA	70F	15 amp
De Soto	4	18	.95	B	AGW	11-HS-59B[1]	12	66	59	N	Chr[3]	2095060	TP	2.45	360	Chr	2095700	V	NA	NA	13.7-14.3	NA	70F	15 amp
Dodge Polara	4	18	.95	B	AGW	11-HS-59B[1]	12	66	59	N	Chr[3]	2095060	TP	2.32	375	Chr	2095700	V	NA	NA	13.7-14.3	NA	70F	15 amp
Dodge Dart Seneca, Pioneer, Phoenix-6	4	17	1.07	B	AGW	11-HS-50B[4]	12	54	50	N	Chr[3]	2095060	TP	2.45	360	Chr	2095700	V	NA	NA	13.7-14.3	NA	70F	15 amp
Seneca, Pioneer, Phoenix-8	4	18	.95	B	AGW	11-HS-50B[4]	12	54	50	N	Chr[3]	2095060	TP	2.18	400	Chr	2095700	V	NA	NA	13.7-14.3	NA	70F	15 amp
Dodge Lancer 170, 770	4	16	1.07	B	AGW	11-HS-50B[4]	12	54	50	N	Chr[3]	2095060	TP	2.45	360	Chr	2095700	V	NA	NA	13.7-14.3	NA	70F	15 amp
Imperial Custom, Crown, Le Baron	4	18	.95	B	A-W	12-HB-70B[2]	12	78	70	N	Chr[3]	2095060	TP	2.32	375	Chr	2095700	V	NA	NA	13.7-14.3	NA	70F	15 amp
Plymouth Savoy, Belvedere, Fury-6	4	17	1.07	B	AGW	11-HS-50B[4]	12	54	50	N	Chr[3]	2095060	TP	2.45	360	Chr	2095700	V	NA	NA	13.7-14.3	NA	70F	15 amp
Savoy, Belvedere, Fury-8	4	18	.95	B	AGW	11-HS-50B[4]	12	54	50	N	Chr[3]	2095060	TP	2.18	400	Chr	2095700	V	NA	NA	13.7-14.3	NA	70F	7 amp
Valiant V-100, V-200	4	16	1.07	B	AGW	11-HS-50B[4]	12	54	50	N	Chr[3]	2095060	TP	2.45	360	Chr	2095700	V	NA	NA	13.7-14.3	NA	70F	7 amp
FORD MOTOR CO.																								
Comet	4	14	1.05	B	Var	.....	12	54	40	N	Fo	CODF-10000-KC	Sh	2.17	565	Fo	CODF-10505-A	TC	12.4-13.2-1220	8	14.6-15.4	23-27	75F	5 amp
Falcon	4	14	1.05	B	Var	.....	12	54	40	N	Fo	CODF-10000-C	Sh	2.17	565	Fo	CODF-10505-A	TC	12.4-13.2-1220	8	14.6-15.4	23-27	75F	5 amp
Ford Fairlane, Fairlane 500, Galaxie-6	4	17	.95	B	Var	.....	12	66	55	N	Fo	.....	Sh	2.00	600	F-A	.....	TC	12.4-13.2-1200	8	14.6-15.4	28-32	75F	5 amp
Fairlane, Fairlane 500, Galaxie-8	4	18½	.90	B	Var	.....	12	66	55	N	Fo	.....	Sh	2.25	600	F-A	.....	TC	12.4-13.2-1200	8	14.6-15.4	28-32	75F	5 amp
Lincoln Continental	4	17½	1.25	B	Fo	CIVF10655A	12	78	80	N	Fo	CIVF-10000-A	Sh	2.25	630	Fo	CIVF-10505-A	TC	12.2-13.0-1400	8	15.3-15.9	38-42	75F	10 amp
Mercury Meteor 600, 800-6	4	17	.95	B	Var	.....	12	66	55	N	Fo	.....	Sh	2.00	600	F-A	.....	TC	12.4-13.2-1200	8	14.6-15.4	28-32	75F	5 amp
Meteor 600, 800; Monterey-8	5	18½	.90	B	Var	.....	12	66	55	N	Fo	.....	Sh	2.25	600	F-A	.....	TC	12.4-13.2-1200	8	14.6-15.4	28-32	75F	5 amp
Thunderbird	5	18½	.90	B	Var	.....	12	78	65	N	Fo	.....	Sh	2.25	625	F-A	.....	TC	12.4-13.2-1200	6	14.6-15.4	28-32	75F	5 amp
GENERAL MOTORS CORP.																								
Buick Special	4	17⅛	.85	B	DR	454	12	54	40	N	DR	1102235	Sh	2.35	530	DR	1119277	CV	11.8-13.6-1450	1-6	13.9-14.7	31-36	.....	10 amp
Le Sabre, Invicta, Electra, Electra 225	4	18	.92	B	DR	562	12	66	70	N	DR	1102181	Sh	2.51	495	DR	1119242	CV	11.8-13.6-1450	1-6	13.9-14.7	31-36	.....	10 amp
Cadillac 60, 62, 63	4	18	.96	B	DR	.....	12	66	70	N	DR	1102170	Tp	2.42	500	DR	1119002	CV	11.8-13.5	0-4	13.8-14.7	32-37	125F	10 amp
75	7	18	.96	B	DR	.....	12	66	70	N	DR	1102141	Tp	2.79	520	DR	1119601	CV	11.8-12.0	0-4	13.8-14.6	43-47	125F	10 amp
Chevrolet Biscayne, Biscayne Fleetmaster, Bel Air, Impala-6	4	17⅝	.95	B	DR	1980458	12	54	53	N	DR	1102096	Sh	2.30	510	DR	1119001	Vib	11.8-13.5-1300	.....	13.8-14.8	27-33	OT	9 amp
Biscayne, Biscayne Fleetmaster, Bel Air, Impala-8	4	17⅝	.95	B	DR	1980458	12	54	53	N	DR	1102097	Sh	2.30	510	DR	1119001	Vib	11.8-13.5-1300	.....	13.8-14.8	27-33	OT	9 amp
Corvair 500, 700, 900	24	11	1.58	B	DR	1980456	12	42	35	N	DR	1102227	Sh	2.30	.....	DR	1119001	Vib	11.8-13.5-1300	1-4	13.8-14.8	27-33	OT	9 amp
Corvette	5	17⅛	.95	B	DR	1980458	12	54	53	N	DR	1102043	Sh	2.30	620	DR	1119001	Vib	11.8-13.5-1300	.....	13.8-14.8	27-33	OT	10 amp
Oldsmobile F-85	4	17	.95	B	DR	1980454	12	54	40	N	DR	1102236	Sh	2.26	600	DR	1119253	CV	11.8-13.5	NS	13.8-14.7	32-37	125F	RSB
88	4	18	.82	B	DR	462	12	54	62	N	DR	1102217	Sh	2.24	525	DR	1119253	CV	11.8-13.5	NS	13.8-14.7	32-37	125F	RSB
Super 88, 98	4	18	.82	B	DR	562	12	66	70	N	DR	1102217	Sh	2.24	525	DR	1119253	CV	11.8-13.5	NS	13.8-14.7	32-37	125F	RSB
Pontiac Catalina, Ventura, Star Chief, Bonneville	4	19	.88	B	DR	456	12	54	53	N	DR	1102203	Sh	2.56	480	DR	1119263	CV	11.8-13.6-1250	NS	14.3	30	125F	10 amp
Tempest	4	17	.88	B	DR	454	12	54	42	N	DR	1102224	Sh	2.17	580	DR	1119263	CV	11.8-13.6-1250	NS	14.3	30	125F	10 amp
STUDEBAKER-PACKARD CORP.																								
Studebaker Lark-6	4	17⅛	.94	B	Wil	HO-11-50	12	54	50	N	AL	GJP-7102C	Sh	2.00	665	AL	VBO-6201A-1	CV	13.0-13.8-1330	NA	14.2-15.0	30	70F	10 amp
Lark, Hawk-8	4	18¼	.87	B	Wil	HO-11-50	12	54	50	N	DR	1102003	Sh	2.19	570	DR	1119123	CV	13.8-14.8-1250	NA	14.7-15.7	30	70F	10 amp

ABBREVIATIONS

1—Autolite only; Gould, 11B-OE-59; Willard, MB-24-59.
2—Autolite only; Willard, MB-27-70.
3—Alternator.
4—Autolite only; Gould, 11B-OE-50; Willard, MB-24-50.
AGW—Autolite, Gould or Willard.
AL—Autolite.
amp—Amperes.
A-W—Autolite or Willard.
B—Ball.
Chr—Chrysler.
CV—Current and voltage control.
DR—Delco-Remy.
F—Degrees Fahrenheit.
F-A—Ford or American Bosch.
Fo—Ford.
H—Hot.
N—Negative.
NA—Not applicable.
NS—Not specified.
OT—Operating temperature.
RSB—¼ ohm resistance in series with battery terminal.
Sh—Shunt.
TC—Three coil.
Tp—Two pole.
TP—Three phase with full wave rectifier.
V—Voltage.
Var—Various.
Vib—Vibrator.
Wil—Willard.

For Directory of Car Manufacturers listed above, see Page 53

STARTING AND IGNITION SYSTEMS

PASSENGER CAR MAKE AND MODEL	STARTING SYSTEM: MOTOR											STARTING SYSTEM: DRIVE			IGNITION SYSTEM: COIL				IGNITION SYSTEM: DISTRIBUTOR								
					Lock Test			No Load Test				Number Teeth						Amps.				Spark Advance Data (Crankshaft Degrees)						
																					Centrifugal Advance (at RPM)		Vacuum Advance (Inches of Mercury)				
	Make	Model	Engine Cranking Speed (RPM)	Test Conditions	Amps.	Volts	Torque (ft. lb.)	Amps.	Volts	RPM (min.)	Starting Procedure	Pinion	Flywheel	Flywheel Tooth Face Width	Make	Model	Engine Stopped	Engine Idling	Make	Model	Start	Maximum	Start	Maximum	Breaker Gap (in.)	Cam Angle (deg.)	Breaker Arm Tension (oz.)
AMERICAN MOTORS CORP.																											
Rambler American (Deluxe & Super)	AL	MEC-6002	NA	NA	285	4.0	6.5	48	10.0	5300	Tik	9	149	.438	AL	200613	3.00	NA	AL	IAT-4402-1	0°-850	14.0°-4000	0°-5.0	11.0°-11.0	.020	39	20
American (Custom), Classic-6	DR	1107201	NA	NA	385	3.5	10.5	112	10.6	3240	Tik	9	149	.438	DR	1115066	3.75	1.70	DR	1112434	0°-1000	22.0°-4200	0°-6.0	22.0°-16.5	.016	32	21
Classic-8	AL	MEC-6003	NA	NA	285	4.0	6.5	48	10.0	5300	Tik	9	149	.438	AL	200571	3.00	NA	AL	IPB-4107	0°-600	36.0°-3800	0°-6.0	20.0°-15.0	.017	30	20
Ambassador	AL	MDY-6009	NA	NA	405	4.0	9.0	60	10.0	4200	Tik	9	149	.438	AL	200571	3.00	NA	AL	IPB-4107	0°-600	36.0°-3800	0°-6.0	20.0°-15.0	.017	30	20
CHECKER MOTORS CORP.																											
Checker Superba, Marathon	AL	MDL-6023	250	EOT	225	4.0	6.0	60	10.0	3200	Tik	10	103	.500	AL	.....	2.60	2.00	AL	IGC-6002	0°-550	18.0°-3350	N	.....	.020	39	19
CHRYSLER CORP.																											
Chrysler Newport, Windsor	Chr	1889200	150	CW	350	4.0	8.5	78	11.0	3800	Tik	9	172	.375	A-E	2005671	3.00	1.90	AL	IBP-4005-E	0°-700	22.0°-4100	0°-7.1	23.5°-16.0	.017	30	19
New Yorker	Chr	1889200	150	CW	350	4.0	8.5	78	11.0	3800	Tik	9	172	.375	A-E	2005671	3.00	1.90	Chr	2095530	0°-800	19.0°-4600	0°-8.5	19.3°-15.0	.017	30	19
300-G	Chr	1889200	150	CW	350	4.0	8.5	78	11.0	3800	Tik	9	172	.375	A-E	2005672	3.00	1.90	AL	IBS-4011	0°-800	20.0°-4800	0°-8.1	18.0°-14.5	.017	30	19
De Soto	Chr	1889200	150	CW	350	4.0	8.5	78	11.0	3800	Tik	9	172	.375	A-E	2005671	3.00	1.90	AL	IBP-4005-E	0°-700	22.0°-4100	0°-7.1	23.5°-16.0	.017	30	19
Dodge Polara	Chr	1889200	150	CW	350	4.0	8.5	78	11.0	3800	Tik	9	172	.375	A-E	2005673	3.00	1.90	AL	IBP-4005-E	0°-700	22.0°-4100	0°-7.1	23.5°-16.0	.017	30	19
Dodge Dart Seneca, Pioneer, Phoenix-6	AL	MDT-7002	150	CW	350	4.0	8.5	58	11.0	3800	Tik	9	148	.375	A-E	2005671	3.00	1.90	Chr	2095270	0°-700	23.0°-4400	0°-5.9	18.1°-12.0	.020	43	19
Seneca, Pioneer, Phoenix-8	Chr	1889100	150	CW	350	4.0	8.5	78	11.0	3800	Tik	9	172	.375	A-E	2005671	3.00	1.90	Chr	2095647	0°-700	23.0°-4600	0°-8.0	27.0°-17.0	.017	30	19
Dodge Lancer 170, 770	AL	MDT-7009	150	CW	350	4.0	8.5	58	11.0	3800	Tik	9	148	.375	A-E	2005673	3.00	1.90	Chr	1889750	0°-800	25.0°-3850	0°-5.9	22.0°-14.5	.020	43	19
Imperial Custom, Crown, Le Baron	Chr	1889200	150	CW	350	4.0	8.5	78	11.0	3800	Tik	9	172	.375	A-E	2005671	3.00	1.90	Chr	2095530	0°-800	19.0°-4600	0°-8.2	19.3°-15.0	.017	30	19
Plymouth Savoy, Belvedere, Fury-6	AL	MDT-7002	150	CW	350	4.0	8.5	58	11.0	3800	Tik	9	148	.375	A-E	2005673	3.00	1.90	Chr	2095270	0°-700	23.0°-4400	0°-5.9	18.1°-12.0	.020	43	19
Savoy, Belvedere, Fury-8	Chr	1889100	150	CW	350	4.0	8.5	78	11.0	3800	Tik	9	172	.375	A-E	2005673	3.00	1.90	Chr	2095647	0°-700	23.0°-4600	0°-8.0	27.0°-17.0	.017	30	19
Valiant V-100, V-200	AL	MDT-7009	150	CW	350	4.0	8.5	58	11.0	3800	Tik	9	148	.375	A-E	2005673	3.00	1.90	Chr	1889750	0°-800	25.0°-3850	0°-5.9	22.0°-14.5	.020	43	19
FORD MOTOR CO.																											
Comet	Fo	CODF-11001A	240	70F	54	4.2	14.0	50	12.0	9500	Tik	9	133	.375	Fo	FAC-12029-A	4.50	2.50	Fo	CODF-12127-A	N	.....	0°-0	28.3°-5.4	.025	37	19
Falcon	Fo	CODF-11001A	240	70F	54	4.2	14.0	50	12.0	9500	Tik	9	133	.375	Fo	FAC-12029-A	4.50	2.50	Fo	CODF-12127-B	N	.....	0°-0	28.3°-5.4	.025	37	19
Ford Fairlane, Fairlane 500, Galaxie-6	Fo	FAR-11001-A	165	85F	580	5.0	14.8	110	12.0	5200	Tik	9	146	.365	Fo	FAC-12029-A	4.50	2.50	F-H	FET-12127-C	N	.....	0°-.3	23.0°-6.1	.025	37	19
Fairlane, Fairlane 500, Galaxie-8	Fo	FAR-11001-A	165	85F	580	5.0	14.8	110	12.0	5200	Tik	9	146	.365	Fo	FAC-12029-A	4.50	2.50	F-H	COAF-12127-A	0°-300	23.0°-4000	0°-1.0	25.0°-19.0	.015	27	19
Lincoln Continental	Fo	CIVF-11001-D	150	85F	525	4.0	14.0	70	12.0	9500	Tik	9	169	.375	Fo	FAC-12029-A	4.50	2.50	Fo	CIVF-12127-A	0°-700	30.0°-4000	1.0°-6.0	22.0°-18.0	.015	27	19
Mercury Meteor 600, 800-6	Fo	FAR-11001-A	165	85F	580	5.0	14.8	110	12.0	5200	Tik	9	146	.365	Fo	FAC-12029-A	4.50	2.50	F-H	FET-12127-C	N	.....	0°-.3	23.0°-6.1	.026	37	19
Meteor 600, 800; Monterey-8	Fo	FAR-11001-A	165	85F	580	5.0	14.8	110	12.0	5200	Tik	9	146	.365	Fo	FAC-12029-A	4.50	2.50	F-H	COAF-12127-A	0°-300	23.0°-4000	0°-1.0	25.0°-19.0	.015	27	19
Thunderbird	Fo	FAR-11001-A	165	85F	580	5.0	14.8	110	12.0	5200	Tik	9	153	.375	Fo	FAC-12029-A	4.50	2.50	Fo	CISF-12127-A	0°-700	23.0°-4000	0°-7.0	15.0°-17.0	.015	27	19
GENERAL MOTORS CORP.																											
Buick Special	DR	1108303	160	EOT	.....	.....	NA	70	10.6	6750	Tik	9	156	.375	DR	1115136	3.70	2.30	DR	1110977	0°-625	28.0°-3700	0°-7.0	17.5°-16.0	.016	30	21
Le Sabre	DR	1107800	160	EOT	330	3.5	NA	100	10.6	3600	Tik	9	166	.573	DR	1115100	3.70	2.30	DR	1110961	0°-725	22.0°-3800	0°-9.0	17.5°-18.0	.016	30	21
Invicta, Electra, Electra 225	DR	1107876	160	EOT	330	2.0	NA	120	10.6	4700	Tik	9	166	.375	DR	1115100	3.70	2.30	DR	1110961	0°-725	22.0°-3800	0°-9.0	17.5°-18.0	.016	30	21
Cadillac 60, 62, 63, 75	DR	1107799	175	.....	330	3.5	NA	83	10.6	4350	Tik	9	166	.500	DR	1115152	2.40	1.25	DR	1110932	.8°-400	8.0°-2000	0°-9.0	11.3°-17.5	.016	30	21
Chevrolet Biscayne, Biscayne Fleetmaster, Bel Air, Impala-6	DR	1107888	.....	EOT	.....	.....	.....	63	10.6	6550	Tik	9	168	.414	DR	1115120	4.00	1.80	DR	1112403	0°-600	26.0°-3500	0°-6.0	22.0°-15.5	.019	32	21
Biscayne, Biscayne Fleetmaster, Bel Air, Impala-8	DR	1107889	.....	EOT	.....	.....	.....	63	10.6	7800	Tik	9	168	.414	DR	1115115	4.00	1.80	DR	1110947	0°-600	28.0°-3750	0°-8.0	15.0°-15.5	.019	30	21
Corvair 500, 700, 900	DR	1108306	NA	EOT	NA	NA	NA	69	10.6	7675	Tik	9	147	.375	DR	1115135	4.00	1.80	DR	1110258	0°-400	32.0°-3600	0°-6.0	23.0°-15.2	.019	33	21
Corvette	DR	1107664	.....	EOT	.....	.....	.....	63	10.6	6200	Tik	9	168	.414	DR	1115091	4.00	1.80	DR	1110946	0°-600	28.0°-3700	0°-8.0	15.0°-15.5	.019	30	21
Oldsmobile F-85	DR	1108302	150	80F	NS	NS	NS	70	10.6	7675	Tik	9	156	.375	DR	1115137	4.50	2.00	DR	1110975	0°-800	26.0°-4200	0°-6.0	25.5°-16.0	.016	30	21
88	DR	1107665	150	80F	NS	NS	NS	83	10.6	3600	Tik	9	166	.500	DR	.....	4.50	2.00	DR	1110968	2.0°-800	24.0°-4400	0°-9.0	22.0°-21.0	.016	30	21
Super 88	DR	1107776	150	80F	NS	NS	NS	100	10.6	3900	Tik	9	166	.500	DR	.....	4.50	2.00	DR	1110968	2.0°-800	24.0°-4400	0°-9.0	22.0°-21.0	.016	30	21
98	DR	1107776	150	80F	NS	NS	NS	100	10.6	3900	Tik	9	166	.450	DR	.....	4.50	2.00	DR	1110968	2.0°-800	24.0°-4400	0°-9.0	22.0°-21.0	.016	30	21
Pontiac Catalina, Ventura, Star Chief, Bonneville	DR	1107791	NA	RT	NR	NR	NR	75	10.3	6900	Tik	9	166	.410	DR	1115133	3.40	2.10	DR	1110971	0°-700	20.0°-3600	0°-7.0	20.0°-14.0	.016	30	21
Tempest	DR	1107796	NA	RT	NR	NR	NR	100	10.6	3600	Tik	9	150	.380	DR	1115138	3.50	3.40	DR	1110254	0°-650	26.0°-4250	0°-7.0	20.0°-14.0	.016	75	21
STUDEBAKER-PACKARD CORP.																											
Studebaker Lark-6	AL	MDU-7005	170	EOT	235	4.0	5.2	55	10.0	5200	Tik	9	151	.375	AL	200639	NA	4.00	AL	IAT-4403-B	0°-800	26.0°-1800	0°-8.0	16.0°-13.0	.020	39	20
Lark-8	DR	1107900	160	EOT	435	5.8	14.0	75	11.0	5000	Tik	9	162	.375	DR	1115154	NA	3.80	DR	1110969	0°-1000	26.0°-2200	0°-5.0	18.0°-13.0	.016	30	21
Hawk	DR	1107900	160	EOT	435	5.8	14.0	75	11.0	5000	Tik	9	162	.375	DR	1115154	NA	3.80	DR	1110864	0°-1000	26.0°-2200	0°-5.0	18.0°-13.0	.016	30	21

ABBREVIATIONS

1—Autolite only; Essex, 62-160-2.
2—Autolite only; Essex, 67-160-3.
3—Autolite only; Essex, 67-160-2.
A-E—Autolite or Essex.
AL—Autolite.
Chr—Chrysler.
CW—Completely warmed engine.
DR—Delco-Remy.
EOT—Engine at operating temperature.
F—Degrees fahrenheit.
F-H—Ford or Holley.
Fo—Ford.
N—None.
NA—Not available.
NR—Lock test not recommended.
NS—Not specified.
RT—Room temperature.
Tik—Turn ignition key to extreme clockwise position.

For Directory of Car Manufacturers listed above, see Page 53

IGNITION TIMING, SPARK PLUGS, AND CLUTCHES

PASSENGER CAR MAKE AND MODEL	IGNITION TIMING		SPARK PLUGS				Cylinder Numbering System and Firing Order	Suppression Location	CLUTCH (PEDAL OPERATED)													
														Facing					Engagement Cushioning Method	Release Bearing		Torsional Dampening Method
	C/s deg. @ RPM	Mark Location	Make and Model	Thread (mm)	Tightening Torque (ft. lb.)	Gap			Make	Type	Type Pressure Plate Springs	Total Plate Pressure	Number of Driven Discs	Material	Inside Diam. (In.)	Outside Diam. (In.)	Effective Area (Sq. In.)	Thickness (In.)		Type	Method of Lubrication	
AMERICAN MOTORS CORP.																						
Rambler — American (Deluxe and Super)	3B-	VD	AL-AL7[1]	14	30	.035	1,5,3,6,2,4	IW	BB	D	Co	1269	1		5.4	8.0	55.2	.125	Cfs	Ba	P	Spr
American (Custom)	8B-	VD	Ch-H18Y[2]	14	30	.035	1,5,3,6,2,4	IW	BB	D	Co	1440	1		5.1	8.5	72.2	.135	Cfs	Ba	P	Spr
Classic-6	8B-	VD	AL-AL7[1]	14	30	.035	1,5,3,6,2,4	IW	BB	D	Co	1446	1		5.1	8.5	72.2	.135	Cfs	Ba	P	Spr
Classic-8	TC-	VD	AL-AL7[1]	14	30	.035	1L,4R,2R,2L,3R,3L,4L,1R	IW	BB	D	Co	1444	1		7.0	10.0	80.1	.125	Cfs	Ba	P	Spr
Ambassador	TC-	VD	AL-AL7[1]	14	30	.035	1L,4R,2R,2L,3R,3L,4L,1R	IW	BB	D	Co	1893	1		6.5	10.5	106.8	.125	Cfs	Ba	P	Spr
CHECKER MOTORS CORP.																						
Checker — Superba, Marathon	4B-375	VD	Ch-UD16	18	34	.029	1,5,3,6,2,4	IC,GA,VR,GH	BB	D	Co	1638	1	Mo	6.5	10.0	90.7	.135	Pcs	Ba	P	SW
CHRYSLER CORP.																						
Chrysler — Newport, Windsor	10B-500		AL-A42	14	31	.035	1L,4R,2R,2L,3R,3L,4L,1R	SP,IW	BB	D	Co	1675	1	MWA	6.5	10.5	106.8	.125	Cfs	Ba	P	CS
New Yorker	10B-500		AL-A42	14	31	.035	1L,4R,2R,2L,3R,3L,4L,1R	SP,IW	N													
300-G	5B-500		AL-A32	14	31	.035	1L,4R,2R,2L,3R,3L,4L,1R	SP,IW	BB	D	Co	2200	1	MWA	6.5	11.0	123.8	.125	Cfs	Ba	P	CS
De Soto	10B-500		AL-A42	14	31	.035	1L,4R,2R,2L,3R,3L,4L,1R	SP,IW	BB	D	Co	1675	1	MWA	6.5	10.5	106.8	.125	Cfs	Ba	P	CS
Dodge — Polara	10B-500		AL-A42	14	31	.035	1L,4R,2R,2L,3R,3L,4L,1R	SP,IW	BB	D	Co	1675	1	MWA	6.5	10.5	106.8	.125	Cfs	Ba	P	CS
Dodge Dart — Seneca, Pioneer, Phoenix-6	2½B-500		AL-AG52	14	31	.035	1,5,3,6,2,4	SP,IW	B-A	D	Co	1403	1	MWA	6.0	9.3	77.8	.125	Cfs	Ba	P	CS
Seneca, Pioneer, Phoenix-8	5B-500		AL-A42	14	31	.035	1L,4R,2R,2L,3R,3L,4L,1R	SP,IW	BB	D	Co	1799	1	MWA	6.8	10.0	85.5	.125	Cfs	Ba	P	CS
Dodge Lancer — 170, 770	2½B-500		AL-AG52	14	31	.035	1,5,3,6,2,4	SP,IW	BB	D	Co	1044	1	MWA	6.1	9.1	71.8	.125	Cfs	Ba	P	SW
Imperial — Custom, Crown, Le Baron	10B-500		AL-A42	14	31	.035	1L,4R,2R,2L,3R,3L,4L,1R	SP,IW	N													
Plymouth — Savoy, Belvedere, Fury-6	2½B-500		AL-AG52	14	31	.035	1,5,3,6,2,4	SP,IW	B-A	D	Co	1301	1	MWA	6.0	9.3	77.8	.125	Cfs	Ba	P	CS
Savoy, Belvedere, Fury-8	5B-500		AL-A42	14	31	.035	1L,4R,2R,2L,3R,3L,4L,1R	SP,IW	BB	D	Co	1530	1	MWA	6.8	10.0	85.5	.125	Cfs	Ba	P	CS
Valiant — V-100, V-200	2½B-500		AL-AG52	14	31	.035	1,5,3,6,2,4	SP,IW	BB	D	Co	1200	1	MWA	6.1	9.1	71.8	.125	Cfs	Ba	P	SW
FORD MOTOR CO.																						
Comet	6B-500		Ch-F14Y	18	25	.034	1,5,3,6,2,4	G,VR,FW,IW	Lo	D	Co	1200	1	Mo	5.4	8.5	68.1	.125	Spr		P	Spr
Falcon	6B-500		Ch-F14Y	18	25	.034	1,5,3,6,2,4	G,VR,FW,IW	Lo	D	Co	1200	1	Mo	5.4	8.5	68.1	.125	Spr		P	Spr
Ford — Fairlane, Fairlane 500, Galaxie-6	4B-500	VD	Ch-870	18	25	.034	1,5,3,6,2,4	G,VR,FW,IW	Lo	D	Co	1230	1	WA	6.0	9.5	85.2	.125	Tdv	Ba	P	SS
Fairlane, Fairlane 500, Galaxie-8	3B-500	VD	Ch-F14Y	18	25	.034	1R,1L,4R,4L,2L,3R,3L,2R	G,VR,FW,IW	Lo	D	Co	1278	1	WA	6.8	10.0	85.5	.125	Tdv	Ba	P	SS
Lincoln Continental	6B-465	VD	Ch-F11Y	18	25	.034	1R,1L,4R,2R,2L,3R,3L,4L	G,VR,FW,IW,GH	N													
Mercury — Meteor 600, 800-6	4B-500	VD	Ch-870	18	25	.034	1,5,3,6,2,4	G,VR,FW,IW	Lo		Co	1230	1	WA	6.0	9.5	85.2	.125	Tdv	Ba	P	SS
Meteor 600, 800: Monterey-8	3B-500	VD	Ch-F14Y	18	25	.034	1R,1L,4R,4L,2L,3R,3L,2R	G,VR,FW,IW	Lo		Co	1278	1	WA	6.8	10.0	85.5	.125	Tdv	Ba	P	SS
Thunderbird	6B-500	VD	Ch-F11Y	18	25	.034	1R,1L,4R,2R,2L,3R,3L,4L	G,VR,IW	N													
GENERAL MOTORS CORP.																						
Buick — Special	7½B-1050	HB	AC-45FFS	14	18	.033	1L,4R,2R,2L,3R,3L,4L,1R	IW,Co,G,VR		D		1230	1	Mo	6.0	9.5	42.6	.125	Spr	Ba	P	Spr
Le Sabre, Invicta, Electra, Electra 225	12B-400	HB	AC-44S	14	28	.033	1R,1L,4R,4L,2L,3R,3L,2R	IW,Co,G,VR	N													
Cadillac — 60, 62, 63, 75	5B-480	CB	AC-44	14	23	.035	1L,4R,2R,2L,3R,3L,4L,1R	G,Co,Bat,EG	N													
Chevrolet — Biscayne, Biscayne Fleetmaster, Bel Air, Impala-6	5B-475	Fly	AC-44	14	25	.036	1,5,3,6,2,4	IW	Chev	D	Dia	1525	1	Mo	6.0	9.5	85.2	.135	Spr	Ba	P	Spr
Biscayne, Biscayne Fleetmaster, Bel Air, Impala-8	6B-475	CP	AC-44	14	25	.036	1L,4R,2R,2L,3R,3L,4L,1R	IW	Chev	D	Dia	1788	1	WA	6.0	10.0	100.5	.135	Spr	Ba	P	Spr
Corvair — 500, 700, 900	7B-500	CP	AC-46FF	14	25	.035	3R,2L,1R,3L,2R,1L	IW	Chev	D	Dia	975	1	WA	6.0	8.0	44.0	.135	Spr	Ba	P	N
Corvette	4B-	VD	AC-44	14	25	.036	1L,4R,2R,2L,3R,3L,4L,1R	IW	BB	D	Co	1620	1	WA	6.5	10.0	90.7	.135	Spr	Ba	P	Spr
Oldsmobile — F-85	5B-850		AC-46FF	14	15	.040	1L,4R,2R,2L,3R,3L,4L,1R	SP,IW,VR,Rad	Lo	D	Co	1230	1	WA	6.0	9.5	85.2	.137	WP	Ba	P	Co
88	5B-850	VD	AC-45	14	26	.030	1L,4R,4L,2L,3R,3L,2R,1R	SP,IW,G,VR,Rad	Lo	D	Co	1557	1	WA	7.0	11.0	113.0	.137	TP	Ba	F	Co
Super 88	5B-850	VD	AC-44	14	26	.030	1L,4R,4L,2L,3R,3L,2R,1R	SP,IW,G,VR,Rad	Lo	D	Co	1557	1	WA	7.0	11.0	113.0	.137	TP	Ba	F	Co
98	5B-850	VD	AC-44	14	26	.030	1L,4R,4L,2L,3R,3L,2R,1R	SP,IW,G,VR,Rad	N													
Pontiac — Catalina, Ventura, Star Chief, Bonneville	6B-490	CP	AC-45S	14	20	.036	1L,4R,2R,2L,3R,3L,4L,1R	IW,FW,G,VR,EG	BB	D	Co	2087	1	MWA	6.5	10.5	88.6	.125	Spr	Ba	P	Co
Tempest	6B-690	CP	AC-45S	14	20	.036	1,3,4,2	IW,FW,G,VR,EG	BB	D	Co	1477	1	MWA	6.0	9.3	65.6	.125	Spr	Ba	P	N
STUDEBAKER-PACKARD CORP.																						
Studebaker — Lark-6	2B-550	VD	Ch-H14Y	14	28	.036	1,5,3,6,2,4	Co,GA,VR,DC	BB	D	Co	972	1	MA	6.1	9.1	72.0	.125	Pcs	Ba	P	SW
Lark-8	4B-550	VD	Ch-H14Y	14	28	.036	1L,4R,2R,2L,3R,3L,4L,1R	Co,GA,VR,Ro	BB	D	Co	1582	1	MA	6.5	10.0	90.6	.125	Pcs	Ba	P	SW
Hawk	4B-550	VD	Ch-H14Y	14	28	.036	1L,4R,2R,2L,3R,3L,4L,1R	Co,GA,VR,Ro,EG	BB	D	Co	1640	1	MA	6.5	10.5		.140	Pcs	Ba	P	SW

ABBREVIATIONS

1—Or Autolite AL-82, ARL-82; Champion H-10, H-18Y
2—Or Autolite AL-82, ARL-82.
AC—A.C. Spark Plug Div.
AL—Autolite.
B—Before top center.
Ba—Ball.
B-A—Borg & Beck or Auburn.
Bat—Battery.
BB—Borg & Beck.
CB—Crankshaft balancer.
Cfs—Crimped flat springs.
Ch—Champion.
Chev—Chevrolet.
CP—Crankshaft pulley.
Co—Coil.
CS—Coil springs.
D—Dry.
DC—Distributor cap.
Dia—Diaphragm.
EG—Engine grounded.
F—Lubrication fitting.
Fly—Flywheel.
FW—Static collectors in front wheel.
G—Generator.
GA—Generator armature.
GH—Ground bonded at hood.
HB—Harmonic balancer.
IC—Ignition coil.
IW—Ignition wires.
L—Left bank.
Lo—Long.
MA—Molded asbestos.
Mo—Molded.
MWA—Molded woven asbestos.
N—None.
P—Pre-lubricated.
Pcs—Plate cushion springs.
R—Right bank.
Rad—Radio.
Ro—Rotor.
SP—Spark plugs.
Spr—Springs.
SS—Spring steel.
SW—Coil springs and friction washers.
TC—Top center.
Tdv—Torbend disc with vibration damper.
TP—Torbend plate.
VD—Vibration dampener.
VR—Voltage regulator.
WA—Woven asbestos.
WP—Waves in plate.

For Directory of Car Manufacturers listed above, see Page 53

LAMP BULBS, FUSES AND CIRCUIT BREAKERS

PASSENGER CAR MAKE AND MODEL	LAMP BULBS (Trade Number)															FUSES AND CIRCUIT BREAKERS (Trade Number)										
	Headlamp			Headlamp Beam Indicator	Parking Light	Tail Light	Stop Light	Directional Signal			License Plate Light	Instrument Light	Ignition Lock Light	Dome Light	Clock Light	Headlamp	Headlamp Beam Indicator	Parking Light	Tail Light	Stop Light	Direction Indicator	License Plate Light	Instrument Light	Ignition Light	Dome Light	Clock
	High Beam	Low and High Beam	Arrangement					Front	Rear	Indicator																
AMERICAN MOTORS CORP.																										
Rambler American	N	6012	S	57	1034	1034	(1)	(2)	(1)	57	67	57	N	1004	57	18CB	(3)	12CB	(2)	30CB	(4)	(2)	(2)	N	(2)	N
Classic, Ambassador	4001	4002	Hor	57	1034	1034	(1)	(2)	(1)	57	67	57	N	1004	57	18CB	(3)	12CB	(2)	30CB	(4)	(2)	(2)	N	(2)	N
CHECKER MOTORS CORP.																										
Checker Superba, Marathon	4001	4002	Hor	57	1034	1034	1034	1034	1034	57	1034	57	N	1003	N	15CB	(3)	(3)	(3)	(3)	15CB	(3)	(3)	N	(5)	(3)
CHRYSLER CORP.																										
Chrysler Newport, Windsor, New Yorker	4001	4002	Can	57	1034	1034	(1)	(2)	(1)	67	67	Ele	1816	1004	Ele	22½CB	(3)	15CB	(2)	(2)	N	(2)	(2)	(2)	SFE6	SFE1
300-G	4001	4002	Can	57	1034	1034	(1)	(2)	67	57	67	Ele	1816	1004	Ele	22½CB	(3)	15CB	(2)	(2)	N	(2)	(2)	(2)	SFE6	SFE1
De Soto	4001	4002	Can	1445	1034	1034	(1)	(2)	(1)	1445	67	57	N	1004	57	22½CB	(3)	15CB	(2)	(2)	N	(2)	(2)	N	(2)	AGA1
Dodge Polara	4001	4002	Hor	1445	1034	1034	(1)	(2)	(1)	1445	67	57	N	1004	57	22½CB	(3)	15CB	(2)	(2)	N	(2)	(2)	N	(2)	AGA1
Dodge Dart Seneca, Pioneer, Phoenix	4001	4002	Hor	1445	1034	1034	(1)	(2)	(1)	1445	67	57	N	1004	57	22½CB	(3)	15CB	(2)	(2)	N	(2)	(2)	N	(2)	AGA1
Dodge Lancer 170, 770	4001	4002	Hor	57	1034	1034	(1)	(2)	(1)	57	67	57	N	1004	N	22½CB	(3)	15CB	(2)	(2)	N	(2)	(2)	N	(2)	
Imperial Custom, Crown, Le Baron	4001	4002	Hor	57	1034	1034	(1)	(2)	(1)	1816	67	Ele	SL	1004	Ele	22½CB	(3)	15CB	(2)	(2)	N	(2)	(2)	(2)	SFE6	SFE1
Plymouth Savoy, Belvedere, Fury	4001	4002	Hor	1445	1034	1034	(1)	(2)	(1)	57	67	57	SL	1004	1816	22½CB	(3)	15CB	(2)	(2)	N	(2)	(2)	N	(2)	AGA1
Valiant V-100, V-200	4001	4002	Hor	57	1034	1034	(1)	(1)	(1)	57	67	57	N	1004	N	22½CB	(3)	15CB	(2)	(2)	N	(2)	(2)	N	(2)	AGA1
FORD MOTOR CO.																										
Comet	4001	4002	Hor	1445	1034	1034	1034	(2)	(1)	1445	67	57[6]	N	1003	N	12CB	(3)	SFE15	(2)	(2)	SFE14	(2)	(2)	N	SFE7½	N
Falcon	N	6012	S	1445	1034	1034	1034	(2)	(1)	1445	67	57[6]	N	1003	N	12CB	(3)	SFE15	(2)	(2)	SFE14	(2)	(2)	N	SFE7½	N
Ford Fairlane, Fairlane 500, Galaxie	4001	4002	Hor	1445	1034	1034	1034	(2)	(1)	57	67	57	N	1003	1816	18CB	(3)	SFE15	(2)	(2)	SFE14	(2)	(2)	N	(2)	1AF
Lincoln Continental	4001	4002	Hor	57	1034	1034	(1)	(2)	(1)	57	67	57	1816	89	1816	18CB	(3)	12CB	(2)	(2)	SFE7½	(2)	(2)	(2)	SFE14	1AG2[7]
Mercury Meteor 600, 800; Monterey	4001	4002	Hor	1445	1034	1034	1034	(2)	(1)	57	67	57	57	1003	57	18CB	(3)	3AG15[8]	(2)	(2)	SFE14	(2)	(2)	(2)	(2)	1AG1[9]
Thunderbird	4001	4002	Hor	57	1034	1034	1034	1034	1034	1816	67	1816[10]	N	1003	1816	18CB	(3)	SFE15	(2)	(2)	SFE14	(2)	(2)	N	(2)	SFE1
GENERAL MOTORS CORP.																										
Buick Special	4001	4002	Hor	158	1034	1034	(1)	(2)	(1)	158	67	1816	N	211	57	15CB	(3)	(3)	SFE9	SFE20	(4)	(1)	AGC3	N	SFE9	AGA2
Le Sabre, Invicta	4001	4002	Hor	158	1034	1034	(1)	(2)	(1)	158	67	1581[11]	53	1004	57	15CB	(3)	(3)	AGC10	AGC10	(4)	(1)	AGC3	(12)	SFE20	AGA2
Electra, Electra 225	4001	4002	Hor	158	1034	1034	(1)	(2)	(1)	158	67	1581[11]	53	90	57	15CB	(3)	(3)	AGC10	AGC10	(4)	(1)	AGC3	(12)	SFE20	AGA2
Cadillac 60, 63, 75	4001	4002	Hor	53	57	1034	(1)	1034	(1)	53	67	.....	53	211	57	20CB	(3)	SFE14	(1)	(1)	(1)	(3)	SFE9	(3)	SFE25	(3)
62	4001	4002	Hor	53	57	1034	(1)	1034	(1)	53	67	.....	53	67	57	20CB	(3)	SFE14	(1)	(1)	(1)	(3)	SFE9	(3)	SFE25	(3)
Chevrolet Biscayne, Biscayne Fleetmaster, Bel Air, Impala-6	4001	4002	Hor	57	1034	1034	(1)	(2)	(1)	57	67	57	53	211	1816	15CB	(3)	(3)	3AG15[8]	(1)	Fla	(1)	3AG3[13]	(12)	(1)	3AG10[14]
Biscayne, Biscayne Fleetmaster, Bel Air, Impala-8	4001	4002	Hor	53	1034	1034	(1)	(2)	(1)	57	67	57	53	1004	57	15CB	(3)	(3)	3AG15[8]	(1)	Fla	(1)	3AG3[13]	(12)	(1)	3AG10[14]
Corvair 500, 700, 900	4001	4002	Hor	53	1034	1034	(1)	(2)	(1)	57	67	1816	N	211	N	15CB	(3)	(3)	3AG15[8]	(1)	Fla	(1)	3AG3[13]	N	3AG10[14]	N
Corvette	4001	4002	Hor	53	1034	1034	(1)	(2)	(1)	57	67	57	N	N	67	15CB	(3)	(3)	3AG10[14]	(1)	Fla	(1)	AGC3	N	N	(1)
Oldsmobile F-85	4001	4002	Hor	53	1034	1034	1034	1034	1034	57	67	57	N	211	57	20CB	(3)	(3)	SFE9	SFE20	SFE9	(1)	AGA3	N	(4)	AGA2
88, Super 88	4001	4002	Hor	57	1034	1034	1034	1034	1034	57	67	57	53	1004	57	20CB	(3)	(3)	SFE20	SFE20	SFE9	(1)	AGA3	(12)	(4)	AGA2
98	4001	4002	Hor	57	1034	1034	1034	1034	1034	57	67	57	53	90	57	20CB	(3)	(3)	SFE20	SFE20	SFE9	(1)	AGA3	(12)	(4)	AGA2
Pontiac Catalina	4001	4002	Hor	57	1034	1034	(1)	(2)	(4)	57	67	57	53	1004	57	22CB	(3)	(3)	(16)	SFE14	(4)	(1)	SFE4	(12)	SFE14	SFE14
Ventura	4001	4002	Hor	1816	1034	1034	(1)	(2)	(4)	1816	67	1816	53	1004	57	22CB	(3)	(3)	(16)	SFE14	(4)	(1)	SFE4	(12)	SFE14	SFE14
Star Chief, Bonneville	4001	4002	Hor	1816	1034	1034[15]	(1)	(2)	(4)	1816	67	1816	53	90	57	22CB	(3)	(3)	(16)	SFE14	(4)	(1)	SFE4	(12)	SFE14	SFE14
Tempest	4001	4002	Hor	57	1034	1034	(1)	(2)	(4)	57	67	57	N	211	N	22CB	(3)	(3)	(17)	SFE9	SFE20	(1)	SFE4	N	(4)	N
STUDEBAKER-PACKARD CORP.																										
Studebaker Lark (Deluxe)	N	5400	S	14-5	1034	1034	(1)	(2)	(1)	1445	67	57	1445	1004	57	18CB	(3)	12CB	(2)	(2)	SFE9	(2)	(2)	(2)	(2)	1AG3
Lark (Regal)	4001	4002	Hor	1445	1034	1034	(1)	(2)	(1)	1445	67	57	1445	1004	57	18CB	(3)	12CB	(2)	(2)	SFE9	(2)	(2)	(2)	(2)	1AG3
Hawk	N	6012	S	1445	1034	1034	(1)	(2)	(1)	1445	67	57	1445	1004	57	20CB	(3)	(3)	(3)	AGC15	(4)	(3)	(3)	(3)	(4)	1AG3

ABBREVIATIONS

1—Combined with tail light.
2—Combined with parking light.
3—Combined with headlamp.
4—Combined with stop light.
5—Combined with direction indicator.
6—Speedometer and gauges only; 1445 for oil and generator.
7—Or AGA2.
8—Or AGC 15.
9—Or AGA 1.
10—For speedometer only; 57 for others.
11—And 53.
12—Combined with instrument light.
13—Or AGC 3.
14—Or AGC 10.
15—Also 67.
16—Combined with headlamp plus a SFE 14 fuse.
17—Combined with headlamp plus a SFE 9 fuse.
Can—Canted diagonally.
CB—Circuit breaker.
Ele—Electroluminescence.
Fla—Flasher.
Hor—Horizontal.
N—None.
S—Single.
SL—Stray light.

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TRANSMISSIONS—Conventional and Conventional with Overdrive

PASSENGER CAR MAKE AND MODEL	TYPE			CONVENTIONAL TRANSMISSION												OVERDRIVE											
						Ratios					Lubricant										Lubricant						
	Manual	Manual with O.D.	Automatic	Shift Lever Location	No. of Forward Speeds	First	Second	Third	Reverse	Synchronous Meshing—Specify Gears	Capacity (pt.)	Type Recommended	SAE Viscosity Number: Summer	Winter	Extreme Cold	Type	Manual Lockout	Downshift Accelerator Control	Minimum Cut-in Speed (mph)	Gear Ratio (to 1)	Capacity (pt.)	Separate Filter	Type Recommended	SAE Viscosity: Summer	Winter	Extreme Cold
AMERICAN MOTORS CORP.																											
Rambler — American, Classic-6	Std	Opt	Opt	SC	3	2.61	1.63	1.00	3.54	ST	1½	MG[1]	80[1]	80[1]	80[1]	P	Y	Y	25	.700	1¼	Y	MG[1]	80[1]	80[1]	80[1]
Classic-8	Std	Opt	Opt	SC	3	2.57	1.55	1.00	3.49	ST	2¼	MG[1]	80[1]	80[1]	80[1]	P	Y	Y	25	.700	1¼	Y	MG[1]	80[1]	80[1]	80[1]
Ambassador	Std	Opt	Opt	SC	3	2.49	1.59	1.00	3.15	ST	4	MG[1]	80[1]	80[1]	80[1]	P	Y	Y	25	.722	.....	Y	MG[1]	80[1]	80[1]	80[1]
CHECKER MOTORS CORP.																											
Checker — Superba, Marathon	Std	Opt	Opt	SC	3	2.57	1.55	1.00	3.49	ST	2½	MP	90	90	80	P	Y	Y	26	.700	1¼	Y	MO	80	80	80
CHRYSLER CORP.																											
Chrysler — Newport, Windsor	Std	NA	Opt	F	3	2.55	1.49	1.00	3.34	ST	4¼	MP[2]	80[2]	80[2]	75[2]	N											
New Yorker	NA	NA	Std	N																							
300-G	Opt	NA	Std	F	3	2.55	1.49	1.00	3.34	ST	4¼	MP	90	(3)	(3)	N											
De Soto	Std	NA	Opt	SC	3	2.55	1.49	1.00	3.34	ST	4¼	MP[2]	80[2]	80[2]	75[2]	N											
Dodge — Polara	Std	NA	Opt	SC	3	2.55	1.49	1.00	3.34	ST	4¼	MP	80	75	.....	N											
Dodge Dart — Seneca, Pioneer, Phoenix-6	Std	NA	Opt	SC	3	2.71	1.83	1.00	3.49	ST	5	MP[2]	80[2]	80[2]	75[2]	N											
Seneca, Pioneer, Phoenix-8	Std	NA	Opt	SC	3	2.12	1.43	1.00	2.73	ST	5	MP[2]	80[2]	80[2]	75[2]	N											
Dodge Lancer — 170, 770	Std	NA	Opt	F	3	2.71	1.83	1.00	3.49	ST	5	MP[2]	80[2]	80[2]	75[2]	N											
Imperial — Custom, Crown, Le Baron	NA	NA	Std	N																							
Plymouth — Savoy, Belvedere, Fury-6	Std	NA	Opt	SC	3	2.71	1.83	1.00	3.49	ST	5	MP[2]	80[2]	80[2]	75[2]	N											
Savoy, Belvedere, Fury-8	Std	NA	Opt	SC	3	2.12	1.43	1.00	2.73	ST	5	MP[2]	80[2]	80[2]	75[2]	N											
Valiant — V-100, V-200	Std	NA	Opt	F	3	2.71	1.83	1.00	3.49	ST	14	MP[2]	80[2]	80[2]	75[2]	N											
FORD MOTOR CO.																											
Comet	Std	NA	Opt	.....	3	3.29	1.75	1.00	4.46	ST	2½	.....	80	80	80	N											
Falcon	Std	NA	Opt	.....	3	3.29	1.75	1.00	4.46	ST	2¼	.....	80	80	80	N											
Ford — Fairlane, Fairlane 500, Galaxie-6	Std	Opt	Opt	SC	3	3.20	1.86	1.00	3.88	ST	3	ME	80	80	80	P	Y	Y	28	.700	1¼	Y	ME	80	80	80
Fairlane, Fairlane 500, Galaxie-8	Std	Opt	Opt	SC	3	2.78	1.61	1.00	3.38	ST	3	ME	80	80	80	P	Y	Y	28	.700	1¼	Y	ME	80	80	80
Lincoln Continental	NA	NA	Std	N																							
Mercury — Meteor 600-6	Std	Opt	Opt	SC	3	3.20	1.86	1.00	3.88	ST	3	ME	80	80	80	P	Y	Y	27	.700	1¼	Y	ME	80	80	80
Meteor 600-8	Std	NA	Opt	SC	3	3.20	1.86	1.00	3.88	ST	3	ME	80	80	80	N											
Meteor 800-8	Std	Opt	Opt	SC	3	2.78	1.61	1.00	3.38	ST	3	ME	80	80	80	P	Y	Y	27	.700	1¼	Y	ME	80	80	80
Meteor 800, Monterey-8	Std	NA	Opt	SC	3	2.78	1.61	1.00	3.38	ST	3	ME	80	80	80	N											
Thunderbird	NA	NA	Std	N																							
GENERAL MOTORS CORP.																											
Buick — Special	Std	NA	Opt	SC	3	2.57	1.55	1.00	3.49	ST	2¼	MO	80	80	80	N											
La Sabre, Invicta, Electra, Electra 225	NA	NA	Std	N																							
Cadillac — 60, 62, 63, 75	NA	NA	Std	N																							
Chevrolet — Biscayne, Biscayne Fleetmaster, Bel Air, Impala-6	Std	Opt	Opt	SC	3	2.94	1.68	1.00	2.94	ST	2	MP	90	90	80	P	Y	Y	27	.700	1	N	MO	90	90	80
Biscayne, Biscayne Fleetmaster, Bel Air, Impala 8	Std	Opt	Opt	SC	3	2.94	1.68	1.00	3.33	ST	2	MP	90	90	80	P	Y	Y	27	.700	1	N	MO	90	90	80
Corvair — 500, 700, 900	Std	NA	Opt	F	3	3.50	1.99	1.00	3.97	ST	2	MP	80	80	80	N											
Corvette	Std	NA	Opt	F	3	2.47	1.53	1.00	2.80	ST	2	MP	90	90	80	N											
Oldsmobile — F-85	Std	NA	Opt	SC	3	2.57	1.55	1.00	3.49	ST	2	MP	80	80	80	N											
88, Super 88	Std	NA	Opt	SC	3	2.15	1.37	1.00	2.28	ST	2½	MP	80	80	80	N											
98	NA	NA	Std	N																							
Pontiac — Catalina, Ventura	Std	NA	Opt	SC	3	2.47	1.53	1.00	2.80	ST	1¾	EP	(3)	(3)	(3)	N											
Star Chief, Bonneville	Std	NA	Opt	SC	3	2.49	1.59	1.00	3.15	ST	2¾	EP	(3)	(3)	(3)	N											
Tempest	Std	NA	Opt	F	3	2.94	1.68	1.00	3.32	ST	3	MH	90	90	90	N											
STUDEBAKER-PACKARD CORP.																											
Studebaker — Lark-6	Std	Opt	Opt	SC	3	2.61	1.63	1.00	3.54	ST	2¼	MO	80	80	80	P	Y	Y	28	.700	⅞	Y	MO	80	80	80
Lark, Hawk-8	Std	Opt	Opt	SC	3	2.57	1.55	1.00	3.49	ST	3¾	MO	80	80	80	P	Y	Y	27	.700	¼	Y	MO	80	80	80

ABBREVIATIONS

1—Or SAE 20W engine oil.
2—Or automatic transmission oil, type A.
3—80 or 90.
EP—Extreme pressure.
F—Floor.
ME—Mild extreme pressure.
MG—Mineral gear lubricant.
MH—Mild hypoid.
MO—Mineral oil.
MP—Multi-purpose gear lubricant.
N—None.
NA—Not available.
Opt—Optional.
P—Planetary.
SC—Steering column.
ST—Second and third.
Std—Standard.
Y—Yes.

For Directory of Car Manufacturers listed above, see Page 53

AUTOMATIC TRANSMISSIONS

PASSENGER CARS MAKE AND MODEL	TRADE NAME	Type	Method of Selection	SELECTOR PATTERN	GEAR RATIOS 1st Speed	2nd Speed	3rd Speed	4th Speed	Reverse	Max. Upshift Speeds—Drive Range (mph)	Max. Kickdown Speeds—Drive Range (mph)	TORQUE CONVERTER Number of Elements	Max. Ratio at Stall at Engine RPM	Type of Cooling	LUBRICATION Capacity—Refill (pt.)	Type Recommended
AMERICAN MOTORS CORP.																
Rambler American	Flash-O-Matic	TCG	Lev	P,N,2[1],1[2],L,R	2.40	1.47	1.00	.....	2.00	53	69	3	2.12-....	AC	20	A
Rambler Classic-6	Flash-O-Matic	TCG	PB	R,NS,D2[1],D1[2],L,P	2.40	1.47	1.00	.....	2.00	53	69	3	2.12-....	AC	20	A
Rambler Classic-8	Flash-O-Matic	TCG	PB	R,NS,D2[1],D1[2],L,P	2.40	1.47	1.00	.....	2.00	51	66	3	2.12-....	WC	20	A
Rambler Ambassador	Flash-O-Matic	TCG	PB	R,NS,D2[1],D1[2],L,P	2.40	1.47	1.00	.....	2.00	50	68	3	2.12-....	WC	22	A
CHECKER MOTORS CORP.																
Checker Superba, Marathon	Dual Range	TCG	Lev	P,R,N,D2[1],D1[2],L	2.40	1.47	1.00	.....	2.00	60	40	3	2.10-....	AW	19	A
CHRYSLER CORP.																
Chrysler Newport, Windsor, New Yorker	Torque Flite	TCG	PB	R,N,D[2],2[3],1[4]	2.45	1.45	1.00	.....	2.20	75	65	3	2.20-....	WC	22	A
Chrysler 300-G	Torque Flite	TCG	PB	R,N,D[2],2[3],1[4]	2.45	1.45	1.00	.....	2.20	80	70	3	2.20-2025	WC	22	A
De Soto	Torque Flite	TCG	PB	R,N,D[2],2[3],1[4]	2.45	1.45	1.00	.....	2.20	75	65	3	2.20-....	WC	22	A
Dodge Polara	Torque Flite	TCG	PB	R,N,D[2],2[3],1[4]	2.45	1.45	1.00	.....	2.20	75	65	3	2.20-....	WC	22	A
Dodge Dart Seneca, Pioneer, Phoenix-6	Torque Flite Six	TCG	PB	R,N,D[2],2[3],1[4]	2.45	1.45	1.00	.....	2.20	69	61	3	2.20-....	WC	14	A
Dodge Dart Seneca, Pioneer, Phoenix-8	Power Flite	TCG	PB	R,N,D[3],L	1.72	1.00	.....	.....	2.39	75	65	3	2.20-....	WC	20	A
Dodge Dart Seneca, Pioneer, Phoenix-8	Torque Flite	TCG	PB	R,N,D[2],2[3],1[4]	2.45	1.45	1.00	.....	2.20	75	65	3	2.20-....	WC	19	A
Dodge Lancer 170, 770	Automatic 3-Speed	TCG	PB	R,N,D[2],2[3],1[4]	2.45	1.45	1.00	.....	2.20	60	55	3	2.25-....	WC	14	A
Imperial Custom, Crown, Le Baron	Torque Flite	TCG	PB	R,N,D[2],2[3],1[4]	2.45	1.45	1.00	.....	2.20	80	70	3	2.20-1925	WC	22	A
Plymouth Savoy, Belvedere, Fury-6	Torque Flite Six	TCG	PB	R,N,D[2],2[3],1[4]	2.45	1.45	1.00	.....	2.20	69	61	3	2.20-....	WC	14	A
Plymouth Savoy, Belvedere, Fury-8	Power Flite	TCG	PB	R,N,D[3],L	1.72	1.00	.....	.....	2.39	75	65	3	2.20-....	WC	20	A
Plymouth Savoy, Belvedere, Fury-8	Torque Flite	TCG	PB	R,N,D[2],2[3],1[4]	2.45	1.45	1.00	.....	2.20	75	65	3	2.20-....	WC	19	A
Valiant V-100, V-200	Automatic 3-Speed	TCG	PB	R,N,D[2],2[3],1[4]	2.45	1.45	1.00	.....	2.20	60	55	3	2.25-....	WC	14	A
FORD MOTOR CO.																
Comet	Ford-O-Matic	TCG	Lev	P,R,N,D[3],L	1.75	1.00	.....	.....	1.50	52	50	3	2.40-....	AC	12½	A
Falcon	Ford-O-Matic	TCG	Lev	P,R,N,D[3],L	1.75	1.00	.....	.....	1.50	52	50	3	2.40-....	AC	12½	A
Ford Fairlane, Fairlane 500, Galaxie-6	Ford-O-Matic	TCG	Lev	P,R,N,D[3],Lo	1.75	1.00	.....	.....	1.50	50	46	3	2.60-....	WC	19	A
Ford Fairlane, Fairlane 500, Galaxie-8	Ford-O-Matic	TCG	Lev	P,R,N,D[3],Lo	1.75	1.00	.....	.....	1.50	57	54	3	2.60-....	WC	19	A
Ford Fairlane, Fairlane 500, Galaxie-8	Cruise-O-Matic	TCG	Lev	P,R,N,D2[1],D1[2],Lo	2.40	1.47	1.00	.....	2.00	67	62	3	2.10-....	WC	20	A
Lincoln Continental	Turbo-Drive	TCG	Lev	P,R,N,D2[1],D1[2],L	2.37	1.48	1.00	.....	1.84	65	61	3	2.10-1720	WC	23	A
Mercury Meteor 600, 800-6	Merc-O-Matic	TCG	Lev	P,R,N,D[3],L	1.75	1.00	.....	.....	1.00	50	46	3	2.61-....	WC	19	A
Mercury Meteor 600, 800; Monterey-8	Merc-O-Matic	TCG	Lev	P,R,N,D[3],L	1.75	1.00	.....	.....	1.00	57	54	3	2.60-....	WC	19	A
Mercury Meteor 600, 800; Monterey-8	Multi-Drive	TCG	Lev	P,R,N,D1[1],D2[2],L	2.40	1.47	1.00	.....	2.00	67	62	3	2.10-....	WC	20	A
Thunderbird	Cruise-O-Matic	TCG	Lev	P,R,N,D2[1],D1[2],Lo	2.40	1.47	1.00	.....	2.00	75	68	3	2.10-....	WC	.....	A
GENERAL MOTORS CORP.																
Buick Special	Turbine Drive	TCG	Lev	P,N,D[2],L,R	3.60	1.50	1.00	.....	3.60	66	60	3	2.50-....	AC	12	A
Buick Le Sabre, Invicta, Electra, Electra 225	Turbine Drive	TCG	Lev	P,N,D[5],L,R	1.82	1.00	.....	.....	1.82	No	No	5	3.40-....	WC	24	A
Cadillac 60, 62, 63, 75	Hydra-Matic	FCG	Lev	P,N,D1[6],D2[2],L[3],R	3.97	2.55	1.55	1.00	3.74	79	71	No	.....	.....	18	A
Chevrolet Biscayne, Biscayne Fleetmaster, Bel Air, Impala-6	Powerglide	TCG	Lev	P,R,N,D[3],L	1.82	1.00	.....	.....	1.82	53	40	3	2.10-....	WC	9	A
Chevrolet Biscayne, Biscayne Fleetmaster, Bel Air, Impala-8	Powerglide	TCG	Lev	P,R,N,D[3],L	1.82	1.00	.....	.....	1.82	55	50	3	2.10-....	WC	9	A
Chevrolet Biscayne, Biscayne Fleetmaster, Bel Air, Impala-8	Turboglide	TCG	Lev	P,R,N,D1[1],Gr	2.67	1.63	1.00	.....	1.78	60	60	5	4.20-....	WC	4	A
Corvair 500, 700, 900	Powerglide	TCG	Lev	L,D[3],N,R	1.82	1.00	.....	.....	1.82	45	40	3	2.60-....	AC	6	A
Corvette	Powerglide	TCG	Lev	P,R,N,D[3],L	1.82	1.00	.....	.....	1.82	55	50	3	2.10-....	AC	9	A
Oldsmobile F-85	Hydra-Matic	FCG	Lev	P,N,D[2],S[2],L,R	3.03	1.58	1.00	.....	2.52	60	53	No	.....	WC	12	A
Oldsmobile 88, Super 88, 98	Hydra-Matic	FCG	Lev	P,N,D[2],S[2],L,R	2.97	1.56	1.00	.....	2.49	77	65	No	.....	WC	11	A
Pontiac Catalina, Ventura	Hydra-Matic	FCG	Lev	P,N,DR1[2],DR2[3],L,R	2.97	1.56	1.00	.....	2.49	75	70	3	1.20-....	WC	12	A
Pontiac Star Chief, Bonneville	Hydra-Matic	FCG	Lev	P,N,DR1[6],DR2[2],L[3],R	3.97	2.55	1.55	1.00	3.74	75	70	No	.....	WC	18	A
Tempest	Tempest Torque	TCG	Lev	R,N,D[3],L	1.82	1.00	.....	.....	1.82	50	45	3	2.00-....	AC	4	A
STUDEBAKER-PACKARD CORP.																
Studebaker Lark-6	Flightomatic	TCG	Lev	P,N,D[2],L,R	2.40	1.47	1.00	.....	2.00	62	53	3	2.15-1500	AC	18	A
Studebaker Lark-8	Flightomatic	TCG	Lev	P,N,D[2],L,R	2.40	1.47	1.00	.....	2.00	68	65	3	2.15-1600	AC	18	A
Studebaker Hawk	Flightomatic	TCG	Lev	P,N,D[1],L,R	2.40	1.47	1.00	.....	2.00	68	65	3	2.15-1800	AC	18	A

ABBREVIATIONS

1—Transmission goes through second and third speeds.
2—Transmission goes through first, second and third speeds.
3—Transmission goes through first and second speeds.
4—Transmission stays in first or low speed.
5—Transmission starts in direct drive.
6—Transmission goes through first, second, third and fourth speeds.
A—Automatic transmission fluid, type A.
AC—Air cooled.
AW—Air and water cooled.
D or DR—Drive range.
FCG—Fluid coupling with planetary gears.
Gr—Grade retarder or low.
L, Lo or LO—Transmission stays in first or low speed.
Lev—Lever.
N—Neutral.
No—None.
NS—Neutral and/or start.
P—Park.
PB—Push button.
R—Reverse.
S—Super range.
TCG—Torque converter with planetary gears.
WC—Water cooled.

For Directory of Car Manufacturers listed above, see Page 53

PROPELLER SHAFT, AND REAR AXLE

PASSENGER CAR MAKE AND MODEL	PROPELLER SHAFT									REAR AXLE															
			Intermediate Bearing		Universals									Gearing						Ring Gear					
								Bearing						Standard Ratios			No. of Teeth—Ring and Pinion								
	Number Used	Type	Type	Lubrication	Make	Number Used	Type	Type	Lubrication	Drive and Torque Taken Through	Type	Gear Type	Drive Pinion Offset	Number of Differential Pinions	Automatic (to −1)	Overdrive (to −1)	Manual (to −1)	Automatic	Overdrive	Manual (to −1)	Pitch Diameter (In.)	Outside Diameter (In.)	Pinion Adjustment	Pinion Bearing Adjustment	Wheel Bearing Type	Lubricant Capacity (Pt.)
AMERICAN MOTORS CORP.																									
Rambler ..... American (Beluxe and Super)	1	Ex	N	.....	MU	2	Cr	AF	P	RS	SF	Hy	1.50	1	3.31	3.78	3.31	13–43	9–34	13–43	7.50	7.54	Sh	Sh	C-R	3
..... American (Custom)	1	Ex	N	.....	MU	2	Cr	AF	P	RS	SF	Hy	1.50	1	2.87	3.31	2.87	15–43	13–43	15–43	7.50	7.54	Sh	Sh	C-R	3
..... Classic-6	1	TT	AF	P	MU	1	Cr	AF	P	TT	SF	Hy	1.50	1	3.31	4.11	3.78	13–43	9–37	9–34	7.50	7.54	Sh	Sh	C-R	3
..... Classic-8	1	TT	AF	P	MU	1	Cr	AF	P	TT	SF	Hy	1.50	1	3.15	4.10	4.10	13–41	10–41	10–41	8.75	8.81	Sh	Sh	C-R	4
..... Ambassador	1	TT	AF	P	MU	1	Cr	AF	P	TT	SF	Hy	1.50	1	2.87	3.54	3.54	15–43	11–39	11–39	8.75	8.81	Sh	Sh	C-R	4
CHECKER MOTORS CORP.																									
Checker ..... Superba, Marathon	2	Ex	AF	P	Spi	3	Cr	AF	GF	RS	SF	.....	1.00	2	3.73	4.09	3.31	11–41	11–54	13–43	8.50	8.50	Sh	Sh	TR	3
CHRYSLER CORP.																									
Chrysler ..... Newport, Windsor	1	Ex	N	.....	DU	2	BT[1]	AF	P	RS	SF	Hy	1.50	2	2.93	N	3.23	14–41	N	13–42	8.75	8.75	So	Sh	TR	4
..... New Yorker	1	Ex	N	.....	DU	2	BT[1]	AF	P	RS	SF	Hy	1.50	2	2.93	N	N	14–41	N	N	8.75	8.75	So	Sh	TR	4
..... 300-G	1	Ex	N	.....	DU	2	BT[1]	AF	P	RS	SF	Hy	1.50	2	3.23	N	3.15	13–42	N	13–41	8.75	8.75	So	Sh	TR	4
De Soto	1	Ex	N	.....	DU	2	BT[1]	AF	P	RS	SF	Hy	1.50	2	2.93	N	3.23	14–41	N	13–42	8.75	8.75	So	Sh	TR	4
Dodge ..... Polara	1	Ex	N	.....	DU	2	BT[1]	AF	P	RS	SF	Hy	1.50	2	2.93	N	3.23	14–41	N	13–42	8.75	8.75	So	Sh	TR	4
Dodge Dart ..... Seneca, Pioneer, Phoenix-6	1	Ex	N	.....	DU	2	BT[1]	AF	P	RS	SF	Hy	1.50	2	3.31	N	3.54	13–43	N	11–39	8.25	8.25	So	Sh	TR	3½
..... Seneca, Pioneer, Phoenix-8	1	Ex	N	.....	DU	2	BT[1]	AF	P	RS	SF	Hy	1.50	2	3.31[2]	N	3.58	13–43[2]	N	12–43	8.75	8.75	So	Sh	TR	4
Dodge Lancer 170, 770	1	Ex	N	.....	Own	2	BT[1]	AF	P	RS	SF	Hy	1.63	2	3.23	N	3.55	13–42	N	11–39	7.25	7.25	So	So	Ba	2
Imperial ..... Custom, Crown, Le Baron	2	Ex	AF	P	DU	3	Cr	AF	P	RS	SF	Hy	1.50	2	N	N	2.93	N	N	14–41	8.75	8.75	So	Sh	TR	4
Plymouth ..... Savoy, Belvedere, Fury-6	1	Ex	N	.....	DU	2	BT[1]	AF	P	RS	SF	Hy	1.50	2	3.31	N	3.54	13–43	N	11–39	8.25	8.25	So	Sh	TR	3½
..... Savoy, Belvedere, Fury-8	1	Ex	N	.....	DU	2	BT[1]	AF	P	RS	SF	Hy	1.50	2	3.31[2]	N	3.58	13–43[2]	N	12–43	8.75	8.75	So	Sh	TR	4
Valiant V-100, V-200	1	Ex	N	.....	Own	2	BT[1]	AF	P	RS	SF	Hy	1.63	2	3.23	N	3.55	13–42	N	11–39	7.25	7.25	So	So	Ba	2
FORD MOTOR CO.																									
Comet	1	Ex	N	.....	D-M	2	Cr	NR	P	RS	SF	Hy	1.50	2	3.50	N	3.50	.....	N	.....	6.75	.94	Sh	Sh	Ba	2½
Falcon	1	Ex	N	.....	MU	2	Cr	NR	P	RS	SF	Hy	1.50	2	3.50	N	3.10	.....	N	.....	6.75	.94	Sh	Sh	Ba	2½
Ford ..... Fairlane, Fairlane 500, Galaxie-6	1	Ex	N	.....	Fo	2	Cr	NR	P	RS	SF	Hy	2.25	2	3.56	3.89	3.56	.....	.....	.....	8.75	1.38	Sh	CS	Ba	4½
..... Fairlane, Fairlane 500, Galaxie-8	1	Ex	N	.....	Fo	2	Cr	NR	P	RS	SF	Hy	2.25	2	3.00	3.89	3.56	.....	.....	.....	8.75	1.38	Sh	CS	Ba	4½
Lincoln Continental	1	Ex	N	.....	Spi	2	CV[1]	NR	GF	RS	SF	Hy	2.38	2	2.89	N	N	19–55	N	N	9.38	9.38	Sh	Sh	Ba	4¾
Mercury ..... Meteor 600-6	1	Ex	N	.....	Fo	2	Cr	Ne	P	RS	SF	Hy	2.25	2	3.56	3.89	3.56	.....	.....	.....	8.75	1.38	Sh	CS	Ba	4½
..... Meteor 800-6	1	Ex	N	.....	Fo	2	Cr	Ne	P	RS	SF	Hy	2.25	2	3.56	N	3.56	.....	.....	.....	8.75	1.38	Sh	CS	Ba	4½
..... Meteor 600, 800; Monterey-8	1	Ex	N	.....	Fo	2	Cr	Ne	P	RS	SF	Hy	2.25	2	3.00	N	3.56	.....	N	.....	8.75	1.38	Sh	CS	Ba	4½
Thunderbird	1	Ex	N	.....	Spi	2	Cr	NR	GF	RS	SF	Hy	2.25	2	3.00	N	N	.....	N	N	8.75	1.38	Sh	CS	Ba	4½
GENERAL MOTORS CORP.																									
Buick ..... Special	2	Ex	Ba	P	S-S	4	Cr	AF	P	A	SF	Hy	1.50	2	3.08	N	3.36	13–40	N	11–37	7.50	7.50	Sh	Sh	Ba	2
..... Le Sabre	2	Ex	Ba	P	S-S	4	Cr	AF	P	A	SF	Hy	1.75	2	3.07	N	N	14–43	N	N	9.38	9.38	Sh	Sh	Ba	6½
..... Invicta, Electra, Electra 225	2	Ex	Ba	P	S-S	4	Cr	AF	P	A	SF	Hy	1.75	2	3.23	N	N	14–42	N	N	9.38	9.38	Sh	Sh	Ba	6½
Cadillac 60, 62, 63, 75	2	Ex	RB	P	S-D	3	Cr	Ne	P	A	.....	Hy	1.75	2	2.94	N	N	16–47	N	N	9.38	9.42	.....	CS	Ba	5
Chevrolet ..... Biscayne, Biscayne Fleetmaster, Bel Air, Impala-6	2	Ex	AF	P	Chev	3	YS	AF	P	A	SF	.....	1.50	2	3.36	3.70	3.36	11–37	10–37	11–37	8.38	8.38	Sh	N	Ba	4
..... Biscayne, Biscayne Fleetmaster, Bel Air, Impala-8	2	Ex	AF	P	Chev	3	YS	AF	P	A	SF	.....	1.50	2	3.08[3]	3.70	3.36	12–37[3]	10–37	11–37	8.38	8.38	Sh	N	Ba	4
Corvair 500, 700, 900	N										DI	.....	1.75	2	3.27	N	3.27	11–36	N	11–36	6.75	6.79	Sh	N	RB	3¼
Corvette	1	Ex	N	.....	Chev	2	YS	AF	GF	RR	SF	.....	1.50	2	3.55	N	3.36	9–32	N	11–37	8.38	8.38	Sh	N	Ba	4
Oldsmobile F-85	1	Ex	AF	P	S-S	4	Cr	AF	P	A	.....	.....	N	2	3.23	N	3.07	13–42	N	13–40	7.50	7.50	Sh	Sh	Ba	2
..... 88	1	Ex	N	.....	S-S	2	Cr	AF	P	A	SF	Hy	1.75	2	2.87	N	3.42	.....	N	.....	9.25	9.25	Sh	CS	Ba	5¼
..... Super 88	1	Ex	N	.....	S-S	2	Cr	AF	P	A	SF	Hy	1.75	2	3.08	N	3.42	.....	N	.....	9.25	9.25	Sh	CS	Ba	5¼
..... 98	1	Ex	N	.....	S-S	2	Cr	AF	P	A	SF	Hy	1.75	2	3.23	N	N	.....	N	N	9.25	9.25	Sh	CS	Ba	5¼
Pontiac ..... Catalina	1	Ex	N	.....	Sag	2	Cr	AF	P	A	SF	Hy	1.75	2	2.69	N	3.23	16–43	N	13–42	9.25	9.27	Sh	CS	Ba	5½
..... Ventura, Star Chief, Bonneville	1	Ex	N	.....	Sag	2	Cr	AF	P	A	SF	Hy	1.75	2	2.87	N	3.23	15–43	N	13–42	9.25	9.27	Sh	CS	Ba	5½
Tempest	1	TT	Ba	P	N	.....	.....	.....	.....	CT	TA	.....	1.88	2	3.08	N	3.55	12–37	N	11–39	7.38	7.38	Sh	AN	RB	3
STUDEBAKER-PACKARD CORP.																									
Studebaker Lark-6	1	Ex	N	.....	Spi	2	Cr	Ne	P	RS	SF	Hy	.....	2	3.73	4.10	3.73	.....	.....	.....	7.13	7.16	Sh	Sh	TR	2½
..... Lark-8	1	Ex	N	.....	Spi	2	Cr	Ne	P	RS	SF	Hy	.....	2	3.07	3.54	3.07	.....	.....	.....	5.75	.....	Sh	Sh	TR	2½
..... Hawk	1	Ex	N	.....	Spi	2	Cr	Ne	P	RS	SF	Hy	.....	2	3.07	3.54	3.31	13–43	13–46	14–34	5.41	.....	Sh	Sh	TR	3

ABBREVIATIONS

1—Front only; rear, cross.
2—With PowerFlite only; with TorqueFlite, 2.93 (14-41).
3—Powerglide only; Turboglide, 3.30 (11-37).
A—Arms.
AF—Anti-friction.
AN—Adjusting nut.
Ba—Ball.
BT—Ball and trunnion.
Chev—Chevrolet.
Cr—Cross.
C-R—Conic and roller.
CS—Collapsible spacer.
CT—Drive taken through control arms and torque taken through torque tube.
CV—Constant velocity.
DI—Differential integral with engine and transmission driving rear wheels independently through "U" joints.
D-M—Dana or Mechanics.
DU—Detroit Universal.
Ex—Exposed.
Fo—Ford.
GF—Grease fitting.
Hy—Hypoid
MU—Mechanics Universal.
N—None.
Ne—Needle.
NR—Needle roller.
P—Prepacked.
RB—Roller bearing.
RR—Rear springs and radius rods.
RS—Rear springs.
Sag—Saginaw.
S-D—Saginaw or Dana.
SF—Semi-floating.
Sh—Shim.
So—Solid shim.
Spi—Spicer.
S-S—Saginaw or Spicer.
TA—Trans-axle unit which includes rear axle and transmission.
TR—Tapered roller.
TT—Torque tube.
Y-S—Yoke and spider.

For Directory of Car Manufacturers listed above, see Page 53

TIRES AND BRAKES

PASSENGER CAR MAKE AND MODEL	STANDARD TIRES		SERVICE BRAKES																			PARKING BRAKES		
				Power Brake			Drum Diameter		Brake Lining							Wheel Cylinder Bore								
										Front Shoe			Rear Shoe											
										Size (length-width-thickness)			Size (length-width-thickness)											
	Rev. per Mile at 30 mph	Tire Size	Type	Make	Type	Effective Area (sq. in.)	Percent Brake Effectiveness—Front	Front	Rear	Bonded or Riveted	Front Wheel	Rear Wheel	Segments per Shoe	Front Wheel	Rear Wheel	Segments per Shoe	Front	Rear	Master Cylinder Bore	Available Pedal Travel	Line Pressure at 100 lb. Pedal Load	Shoe Clearance Adjustment	Type of Control	Location of Control	Operates on
AMERICAN MOTORS CORP.																								
Rambler American	804	6.00/15	BDS	Mor	Vac	139.5	60.2	9	9	Bon	7.62-2.00-.19	7.62-2.00-.19	1	9.82-2.00-.19	9.82-2.00-.19	1	1	11/16	1	7.3	825	.015	PH	LS	RB
Classic-6	781	6.50/15	WSA	Mor	Vac	153.8	60.2	9	9	Bon	7.62-2.25-.19	7.62-2.00-.19	1	9.82-2.50-.19	9.97-2.00-.19	1	1	11/16	1	6.5	785	.015	FO	LS	RB
Classic-8	766	7.50/14	BDS	Mor	Vac	167.5	62.4	10	10	Bon	8.90-2.50-.19	8.46-1.75-.19	1	11.06-2.50-.19	10.88-1.75-.19	1	1 1/16	7/8	1	6.5	785	.015	FO	LS	RB
Ambassador	759	8.00/14	BDS	Mor	Vac	167.5	62.4	10	10	Bon	8.90-2.50-.19	8.46-1.75-.19	1	11.06-2.50-.19	10.88-1.75-.19	1	1 1/16	7/8	1	6.5	785	.015	FO	LS	RB
CHECKER MOTORS CORP.																								
Checker Superba, Marathon	769	6.70/15	SEC	Ben	Vac	191.9	50.0	11	11	Bon	9.31-2.25-.22	9.31-2.25-.19	1	12.00-2.25-.22	12.00-2.25-.19	1	1	7/8	1	6.0	685	ALD[1]	FO	LS	RB
CHRYSLER CORP.																								
Chrysler Newport, Windsor	760	8.00/14	.....	.....	Vac	230.0	60.0	11	11	Bon	11.50-2.50-.20	11.50-2.50-.20	1	11.50-2.50-.20	11.50-2.50-.20	1	1 1/16	1 1/16	1 1/16	6.8	650	NMA	FO	LS	TS
New Yorker	747	8.50/14	.....	.....	Vac	251.0	60.0	12	12	Bon	12.60-2.50-.20	12.60-2.50-.20	1	12.60-2.50-.20	12.60-2.50-.20	1	1 1/16	1 1/16	1 1/16	4.8	1210	NMA	FO	LS	TS
300-G	721	8.00/15	.....	.....	Vac	251.0	60.0	12	12	Bon	12.60-2.50-.20	12.60-2.50-.20	1	12.60-2.50-.20	12.60-2.50-.20	1	1 1/16	1 1/16	1 1/16	4.8	1210	NMA	FO	LS	TS
De Soto	760	8.00/14	.....	.....	Vac	230.0	60.0	11	11	Bon	11.50-2.50-.20	11.50-2.50-.20	1	11.50-2.50-.20	11.50-2.50-.20	1	1 1/16	1 1/16	1 1/16	6.2	650	NMA	FO	LS	TS
Dodge Polara	760	8.00/14	.....	.....	Vac	230.0	60.0	11	11	Bon	11.50-2.50-.20	11.50-2.50-.20	1	11.50-2.50-.20	11.50-2.50-.20	1	1 1/16	1 1/16	1 1/16	6.0	650	NMA	FO	LS	TS
Dodge Dart Seneca, Pioneer, Phoenix-6	795	7.00/14	.....	.....	Vac	184.0	60.0	11	11	Bon	11.50-2.00-.20	11.50-2.00-.20	1	11.50-2.00-.20	11.50-2.00-.20	1	1 1/16	1 1/16	1 1/16	6.0	650	NMA	FO	LS	TS
Seneca, Pioneer, Phoenix-8	776	7.50/14	.....	.....	Vac	184.0	60.0	11	11	Bon	11.50-2.00-.20	11.50-2.00-.20	1	11.50-2.00-.20	11.50-2.00-.20	1	1 1/16	1 1/16	1 1/16	6.0	650	NMA	FO	LS	TS
Dodge Lancer 170, 770	856	6.50/13	DS	.....	Vac	129.1	60.0	9	9	Riv	7.66-2.25-.20	7.66-2.00-.20	1	9.82-2.50-.20	9.82-2.00-.20	1	1	11/16	1	6.0	890	NMA	FO	LS	RB
Imperial Custom, Crown, Le Baron	702	8.20/15	.....	.....	Vac	251.0	60.0	12	12	Bon	12.60-2.50-.20	12.60-2.50-.20	1	12.60-2.50-.20	12.60-2.50-.20	1	1 1/16	1 1/16	1 1/16	4.8	1210	NMA	FO	LS	TS
Plymouth Savoy, Belvedere, Fury-6	795	7.00/14	.....	.....	Vac	184.0	60.0	11	11	Bon	11.50-2.00-.20	11.50-2.00-.20	1	11.50-2.00-.20	11.50-2.00-.20	1	1 1/16	1 1/16	1 1/16	6.0	650	NMA	FO	LS	TS
Savoy, Belvedere, Fury-8	776	7.50/14	.....	.....	Vac	184.0	60.0	11	11	Bon	11.50-2.00-.20	11.50-2.00-.20	1	11.50-2.00-.20	11.50-2.00-.20	1	1 3/16	1 1/16	1 1/16	6.0	650	NMA	FO	LS	TS
Valiant V-100, V-200	856	6.50/13	DS	.....	Vac	129.1	60.0	9	9	Riv	7.66-2.25-.20	7.66-2.00-.20	1	9.82-2.50-.20	9.82-2.00-.20	1	1	11/16	1	6.0	890	NMA	FO	LS	RB
FORD MOTOR CO.																								
Comet	897	6.00/13	DSA	.....	.....	114.3	63.1	9	9	Riv	7.68-2.25-.19	7.68-1.50-.19	1	9.81-2.25-.19	9.81-1.50-.19	1	1 1/16	11/16	1	6.5	702	.011	TH	.....	RB
Falcon	897	6.00/13	DSA	.....	.....	114.3	63.1	9	9	Riv	7.68-2.25-.19	7.68-1.50-.19	1	9.81-2.25-.19	9.81-1.50-.19	1	1 1/16	11/16	1	6.5	702	.011	TH	.....	RB
Ford Fairlane, Fairlane 500, Galaxie	786	7.50/14	DS	.....	Vac	180.0	54.0	11	11	Riv	9.35-2.50-.21	9.35-2.50-.21	1	11.96-2.50-.29	11.96-2.50-.23	1	1 1/16	11/16	1	7.2	705	.010	FO	LS	RB
Lincoln Continental	743	9.00/14	DSA	Ben	Vac	227.0	57.7	11	11	Riv	9.39-3.00-.22	9.39-3.00-.22	1	12.21-3.00-.28	12.21-3.00-.28	1	1 1/16	11/16	7/8	4.8	1185	.015	FO	LS	RB
Mercury Meteor 600, 800; Monterey	786	7.50/14	DSA	Ben	Vac	180.0	54.0	11	11	Riv	9.35-2.50-.21	9.35-2.50-.21	1	11.96-2.50-.29	11.96-2.50-.23	1	1 1/16	11/16	1	7.2	705	.010	FO	LS	RB
Thunderbird	777	8.00/14	DS	B-M	At[2]	198.0	55.5	11	11	Riv	9.35-3.00-.22	9.35-2.50-.22	1	11.96-3.00-.25	11.96-2.50-.25	1	1 1/16	11/16	1	4.8	920	.010	FF	LS	RB
GENERAL MOTORS CORP.																								
Buick Special	856	6.50/13	DS	N	.....	123.8	56.8	9½	9½	Riv	7.52-2.00-.20	7.52-1.75-.20	1	9.79-2.00-.20	9.79-1.75-.20	1	1	7/8	1	6.4	725	.015	P	RS	RB
Le Sabre, Invicta	743	7.60/15	DS	Mor	Int	156.9	55.9	12	12	Riv	10.04-2.25-.27	10.04-2.00-.22	1	12.96-2.25-.27	12.96-2.00-.22	1	1 1/16	1	1	6.8	800	.015	FO	LS	RB
Electra, Electra 225	730	8.00/15	DS	Mor	Int	156.9	55.9	12	12	Riv	10.04-2.25-.27	10.04-2.00-.22	1	12.96-2.25-.27	12.96-2.00-.22	1	1 1/16	1	1	3.6	400	.015	FO	LS	RB
Cadillac 60, 62, 63	715	8.00/15	DSA	B-M	Vac	203.7	59.0	12	12	Riv	11.50-2.50-.25	11.50-2.50-.25	1	12.98-2.50-.25	12.98-2.50-.25	1	1 1/16	11/16	11/16	5.0	930	.020	FV	LS	RB
75	709	8.20/15	DSA	B-M	Vac	207.6	59.0	12	12	Riv	12.98-2.50-.25	12.98-2.50-.25	1	12.98-2.50-.25	12.98-2.50-.25	1	1 1/16	11/16	11/16	5.0	930	.020	FV	LS	RB
Chevrolet Biscayne, Biscayne Fleetmaster, Bel Air, Impala	789	7.50/14	DS	B-M	Vac	185.6	58.5	11	11	Bon	9.30-2.75-.17	9.30-2.00-.17	1	11.70-2.75-.17	11.70-2.00-.17	1	1 1/16	1	1	6.4	750	ALD[3]	FO	LS	RB
Corvair 500, 700, 900	853	6.50/13	DS	N	.....	120.8	48.0	9	9	Bon	7.85-1.75-.16	7.85-1.75-.16	1	9.42-1.75-.16	9.42-1.75-.16	1	7/8	11/16	1	5.8	840	AHD[4]	HL	LS	RB
Corvette	760	6.70/15	Ser	N	.....	157.0	58.5	11	11	Bon	9.29-2.00-.17	9.29-1.75-.17	1	11.69-2.00-.17	11.69-1.75-.16	1	1 1/16	1	1	4.5	700	ALD[3]	TH	LS	RB
Oldsmobile F-85	639	6.50/13	DS	N	.....	127.0	57.0	9½	9½	Riv	7.52-2.00-.20	7.52-1.75-.20	1	9.79-2.00-.20	9.79-1.75-.20	1	1	7/8	1	6.5	813	.015	.....	.....	RB
88, Super 88	755	8.00/14	DS	B-M	Int	156.8	56.0	11	11	Riv	12.00-2.50-.25	12.00-2.00-.25	1	9.00-2.50-.25	9.00-2.00-.25	1	1 1/16	1	1	6.5	750	.015	.....	LS	RB
98	735	8.50/14	DS	B-M	Int	156.8	56.0	11	11	Riv	12.00-2.50-.25	12.00-2.00-.25	1	9.00-2.50-.25	9.00-2.00-.25	1	1 1/16	1	1	3.6	700	.015	.....	LS	RB
Pontiac Catalina, Ventura, Star Chief, Bonneville	749	8.00/14	.....	B-M	Int	173.7	58.5	11	11	Riv	9.29-2.50-.22	9.29-2.00-.22	1	11.94-2.50-.22	11.94-2.00-.22	1	1 1/16	1	1	6.3	800	.015[5]	FO	LS	RB
Tempest	795	6.00/15	.....	N	.....	108.9	56.3	9	9	Riv	7.15-1.75-.22	7.15-1.75-.22	1	9.31-1.75-.22	9.31-1.75-.22	1	1 1/16	11/16	1	4.5	900	AHD[6]	FO	LS	RB
STUDEBAKER-PACKARD CORP.																								
Studebaker Lark-6	795	6.00/15	SE	.....	Vac	146.4	62.0	10	9	Bon	8.47-2.00-.19	7.56-2.00-.19	1	10.83-2.00-.25	9.75-2.00-.19	1	1	11/16	1	6.0	890	.007	TH	RS	RB
Lark-8	770	6.50/15	SE	.....	Vac	172.8	62.0	11	10	Bon	9.33-2.25-.19	8.47-2.00-.19	1	11.89-2.25-.22	10.84-2.00-.19	1	1 1/16	7/8	1	6.0	890	.007	TH	RS	RB
Hawk	753	6.70/15	SE	.....	Vac	172.8	62.0	11	10	Bon	9.33-2.25-.19	8.47-2.00-.19	1	11.89-2.25-.22	10.84-2.00-.19	1	1 1/16	7/8	1	6.0	890	.007	TH	RS	RB

ABBREVIATIONS

1—Back off eight notches.
2—Bendix only; Midland-Ross, vacuum.
3—Back off seven notches.
4—Back off 12 notches in front and 16 notches in rear.
5—Secondary only; primary against drum.
6—Back off 10 notches in front and 12 notches in rear.
AHD—Adjust to heavy drag.
ALD—Adjust to light drag.
At—Atmosphere.
BDS—Bendix Duo-Servo.
Ben—Bendix.
B-M—Bendix or Midland-Ross.
Bon—Bonded.
DS—Duo-Servo.
DSA—Duo-Servo, self adjusting.
FF—Foot operated, foot release.
FO—Foot operated, hand lever release.
FV—Foot operated, vacuum release.
HL—Hand lever.
Int—Integral unit.
LS—Left side of steering column, below instrument panel.
Mor—Moraine. **N**—None.
NMA—No major adjustment required.
P—Pull type.
PH—Pull handle.
RB—Rear service brakes.
Riv—Riveted.
RS—Right side of steering column, below instrument panel.
SE—Self energizing.
SEC—Self energizing and centering.
Ser—Servo.
TH—"T" handle.
TS—Transmission output shaft.
Vac—Vacuum.
WSA—Wagner Servo Action.

For Directory of Car Manufacturers listed above, see Page 53

FRONT SUSPENSION AND STEERING

PASSENGER CAR MAKE AND MODEL	FRONT SUSPENSION											STEERING																				
	Spring							Shock Absorbers						Turning Diameter			Mechanical					Power						Linkage			
		Size															Gear							Gear							
	Type	Type	Coil Height or Bar Length	Coil I. D. or Bar Diameter	Spring Rate (lb. per in.)	Rate at Wheel (lb. per in.)	Design Load (lb. @ design height)	Make	Type	Piston Diam. (in.)	Stabilizer—Type	Type	Wheel Diameter	Wall to Wall (outside front)	Curb to Curb (outside front)	Outside Wheel Angle with Inside Wheel at 20 Degrees	Type	Make	Ratios (to-1) Gear	Ratios (to-1) Over-all	Type	Make	Type	Ratios (to-1) Gear	Ratios (to-1) Over-all	Pump Driven by	Type	Location	Drag Link	Tie Rods
AMERICAN MOTORS CORP.																															
Rambler—American	IDC	Co	$10\frac{5}{16}$	$3\frac{1}{2}$	95	93	755–$10\frac{5}{16}$	Mon	D	1	N	Mec	17	37'11"	35'7"	17.7	WR	Gem	20.4	22.0	Lk	M-T	.....	20.4	17.5	BC	BS	F	Tr	2
Classic-6 (Cast Iron Block)	IDC	Co	$8\frac{5}{16}$	5	110L	94L	960–$8\frac{5}{16}$L	Mon	D	1	N	Mec	17	39'4½"	37'3"	17.3	RB	Sag	20.0	23.0	Lk	Mon	RB	20.0	18.6	BC	BS	F	Tr	2
Classic-6 (Aluminum Block)	IDC	Co	$8\frac{5}{16}$	5	110	94	930–$8\frac{5}{16}$L	Mon	D	1	N	Mec	17	39'4½"	37'3"	17.3	RB	Sag	20.0	23.0	Lk	Mon	RB	20.0	18.6	BC	BS	F	Tr	2
Classic-8	IDC	Co	$8\frac{5}{16}$	5	120	102	1075–$8\frac{5}{16}$	Gab	D	1	N	Mec	17	39'8"	37'7½"	17.2	RB	Sag	24.0	28.8	Lk	Mon	RB	20.0	18.4	BC	BS	R	Tr	2
Ambassador	IDC	Co	$8\frac{5}{16}$	5	90	80	1000–$8\frac{5}{16}$	Gab	D	1	LI	Mec	17	41'9"	39'9"	17.5	RB	Sag	20.0	25.6	Lk	Mon	RB	20.0	25.4	BC	BS	R	Tr	2
CHECKER MOTORS CORP.																															
Checker—Superba, Marathon	IBC	Co	$9\frac{1}{2}$	4	352	161	1826–$9\frac{1}{2}$	Gab	D	$1\frac{5}{8}$	Li	Mec	17	$17\frac{1}{4}$	42'4"	37'6"	17.5	RB	Sag	24.0	26.9	Lk	Sag	RB	24.0	26.9	BC	Par	R	Tr	2
CHRYSLER CORP.																															
Chrysler—Newport, Windsor	ITB	TB	40		NA	130	NA	Own	D	1	.....	Mec	16	46'5"	44'0"	18.7	WTR	Own	20.4	30.2	In	Own	RS	15.7	19.2	BC	SIA	R	Tr	2
New Yorker	ITB	TB	44	1	NA	125	NA	Own	D	1	LI	Pow	16	49'8"	46'8"	18.7	N	.....	.....	.....	In	Own	RS	15.7	19.4	BC	SIA	R	Tr	2
300-G	ITB	TB	44	$1\frac{1}{8}$	NA	175	NA	Own	D	$1\frac{5}{8}$	LI	Pow	16	49'8"	46'8"	18.7	N	.....	.....	.....	In	Own	RS	15.7	19.4	BC	SIA	R	Tr	2
De Soto	ITB	TB	40		NA	130	NA	Own	D	1	N	Mec	17	46'10"	44'0"	18.7	WTR	Own	20.4	30.2	In	Own	RS	15.7	19.2	BC	SIA	R	Tr	2
Dodge—Polara	ITB	TB	40		NA	130	NA	Own	D	1	LI	Mec	17	46'10"	44'0"	18.7	WTR	Own	20.4	30.2	In	Own	RS	15.7	19.2	BC	SIA	R	Tr	2
Dodge Dart—Seneca, Pioneer, Phoenix-6	ITB	TB	40		NA	120	NA	Own	D	1	LI	Mec	16	45'10"	42'5"	18.7	WTR	Own	20.4	30.2	In	Own	RS	15.7	19.2	BC	SIA	R	Tr	2
Seneca, Pioneer, Phoenix-8	ITB	TB	40		NA	130	NA	Own	D	1	LI	Mec	16	45'10"	42'5"	18.7	WTR	Own	20.4	30.2	In	Own	RS	15.7	19.2	BC	SIA	R	Tr	2
Dodge Lancer—170, 770	ITB	TB	35		NA	105	NA	Own	D	1	N	Mec	16	40'5"	37'10"	17.7	WBN	Sag	20.0	23.8	In	Own	RS	15.7	18.7	BC	SIA	R	Tr	2
Imperial—Custom, Crown, Le Baron	ITB	TB	45	$1\frac{1}{4}$	NA	125	NA	Own	D	1	LI	Pow	17	51'5"	48'3"	18.8	N	.....	.....	.....	In	Own	RS	15.7	19.4	BC	SIA	R	Tr	2
Plymouth—Savoy, Belvedere, Fury-6	ITB	TB	40		NA	120	NA	Own	D	1	LI	Mec	17	45'9"	42'3"	18.7	WTR	Own	20.4	30.2	In	Own	RS	15.7	19.2	BC	SIA	R	Tr	2
Savoy, Belvedere, Fury-8	ITB	TB	40		NA	130	NA	Own	D	1	LI	Mec	17	45'9"	42'3"	18.7	WTR	Own	20.4	30.2	In	Own	RS	15.7	19.2	BC	SIA	R	Tr	2
Valiant—V-100, V-200	ITB	TB	35		NA	105	NA	Own	D	1	N	Mec	16	40'4"	37'10"	17.7	WBN	Sag	20.0	23.8	In	Own	RS	15.7	18.7	BC	SIA	R	Tr	2
FORD MOTOR CO.																															
Comet	IBC	Co	$3\frac{1}{2}$		195	72	1210	G-F	D	1	LI	Mec	17	42'5"	39'11"	20.8	RBN	Fo	19.9	27.0	N	.....	.....	.....	.....	.....	.....	Par	R	Tr	2
Falcon	IBC	Co	$3\frac{1}{2}$		195	72	1210	G-F	D	1	LI	Mec	17	40'10"	38'4"	20.8	RBN	Fo	19.9	27.0	N	.....	.....	.....	.....	.....	.....	Par	R	Tr	2
Ford—Fairlane, Fairlane 500, Galaxie-6	IBC	Co	$10\frac{3}{4}$	$4\frac{1}{2}$	400	105	2225	Var	D	1	LI	Mec	17	43'8"	41'0"	.....	RBN	Fo	22.0	30.0	Lk	Ben	.....	20.0	23.0	BC	Par	R	Tr	2
Fairlane, Fairlane 500, Galaxie-8	IBC	Co	$10\frac{3}{4}$	$4\frac{1}{2}$	400	105	2325	Var	D	1	LI	Mec	17	43'8"	41'0"	.....	RBN	Fo	22.0	30.0	Lk	Ben	.....	20.0	23.0	BC	Par	R	Tr	2
Lincoln Continental	IBC	Co	$11\frac{1}{4}$	$4\frac{1}{2}$	375	120	2740	Gab	D	$1\frac{3}{16}$	LI	Pow	16	47'10"	45'9"	17.8	N	.....	.....	.....	In	Fo	RBN	17.0	20.5	Cr	Par	R	Tr	2
Mercury—Meteor 600	IBC	Co	$10\frac{3}{4}$	$4\frac{1}{2}$	400	91	2425	Var	D	1	LI	Mec	17	44'4"	41'8"	17.3	RBN	Fo	22.0	30.0	Lk	Ben	RBN	20.0	23.1	BC	Par	R	Tr	2
Meteor 800; Monterey	IBC	Co	$10\frac{3}{4}$	$4\frac{1}{2}$	400	91	2525	Var	D	1	LI	Mec	17	44'4"	41'8"	17.3	RBN	Fo	22.0	30.0	Lk	Ben	RBN	20.0	23.1	BC	Par	R	Tr	2
Thunderbird	IBC	Co	$10\frac{1}{4}$	$4\frac{1}{2}$	295	105	1930	Gab	D	$1\frac{3}{16}$	LI	Pow	16	43'2"	40'3"	.....	N	.....	.....	.....	In	Fo	RBN	16.8	20.3	BC	Par	R	Tr	2
GENERAL MOTORS CORP.																															
Buick—Special	IBC	Co	$9\frac{1}{2}$	$3\frac{7}{8}$	240	78	1370	Del	D	1	LI	Mec	17	38'11"	38'2"	23.5	RBN	Sag	22.0	26.2	In	Sag	RBN	17.5	20.8	BC	Par	R	Tr	2
Le Sabre, Invicta	IBC	Co	11	$4\frac{1}{4}$	350	85	2405	Del	D	1	LI	Mec	17	46'8"	44'0"	22.5	RBN	Sag	28.0	31.9	In	Sag	RBN	17.5	19.9	BC	Par	R	Tr	2
Electra, Electra 225	IBC	Co	11	$4\frac{1}{4}$	380	93	2505	Del	D	1	LI	Pow	17	48'2"	45'9"	22.5	N	.....	.....	.....	In	Sag	RBN	17.5	19.9	BC	Par	R	Tr	2
Cadillac—60, 62, 63	ICS	Co	$9\frac{1}{2}$	4	325	93	2450	Del	D	1	LI	Pow	16	45'9"	43'2"	18.2	N	.....	.....	.....	In	Sag	BNS	17.5	18.2	BC	PDL	R	Tr	2
75	ICS	Co	$10\frac{7}{8}$	4	475	132	2900	Del	D	1	LI	Pow	16	51'3"	48'9"	18.2	N	.....	.....	.....	In	Sag	BNS	17.5	18.2	BC	PDL	R	Tr	2
Chevrolet—Biscayne, Biscayne Fleetmaster, Bel Air-6	IBC	Co	$10\frac{1}{2}$	$3\frac{11}{16}$	370	129	1855–$10\frac{1}{2}$	Del	D	1	N	Mec	17	43'8"	40'10"	17.9	SRB	Sag	24.0	28.0	Lk	Sag	SRB	20.0	24.0	BC	Re	F	N	2
Impala-6	IBC	Co	$10\frac{1}{2}$	$3\frac{11}{16}$	370	129	1855–$10\frac{1}{2}$	Del	D	1	LI	Mec	17	43'8"	40'10"	17.9	SRB	Sag	24.0	28.0	Lk	Sag	SRB	20.0	24.0	BC	Re	F	N	2
Biscayne, Biscayne Fleetmaster, Bel Air, Impala-8	IBC	Co	$10\frac{1}{2}$	$3\frac{11}{16}$	275	96	1855–$10\frac{1}{2}$	Del	D	1	LI	Mec	17	43'9"	41'4"	17.9	SRB	Sag	24.0	28.0	Lk	Sag	SRB	20.0	24.0	BC	Re	F	N	2
Corvair—500, 700, 900	IBC	Co	$6\frac{1}{2}$	$3\frac{13}{16}$	168	86	815–$6\frac{1}{2}$	Del	D	1	N	Mec	16	41'4" L	39'0" L	18.1	RB	Sag	18.0	23.5	N	.....	.....	.....	.....	.....	.....	PR	F	N	2
Corvette	ICS	Co	$9\frac{5}{8}$	$3\frac{7}{8}$	300	115	1235–$9\frac{5}{8}$	Del	D	1	LI	Mec	17	39'0" L	37'0" L	17.0	SWB	Sag	16.0	21.0	N	.....	.....	.....	.....	.....	.....	CP	R	Lg	2
Oldsmobile—F-85	ICS	Co	$9\frac{1}{2}$	$3\frac{7}{8}$	240	78	1370–$9\frac{1}{2}$	Del	D	1	LI	Mec	17	39'3"	37'0"	17.8	BN	Sag	22.0	26.2	In	Sag	RV	17.5	20.8	BC	Tub	R	Tr	2
88	ICS	Co	11	$4\frac{1}{4}$	300	100	2360–11	Del	D	1	LI	Mec	17	46'0" L	43'1" L	.....	BN	Sag	24.0	33.1	In	Sag	BN	17.5	21.8	BC	For	R	Tr	2
Super 88	ICS	Co	11	$4\frac{1}{4}$	300	100	2430–11	Del	D	1	LI	Mec	17	46'0" L	43'1" L	.....	BN	Sag	24.0	33.1	In	Sag	BN	17.5	21.8	BC	For	R	Tr	2
98	ICS	Co	11	$4\frac{1}{4}$	300	100	2500–11	Del	D	1	LI	Pow	17	47'1"	43'8" L	.....	N	.....	.....	.....	In	Sag	BN	17.5	21.8	BC	For	R	Tr	2
Pontiac—Catalina, Ventura	IBC	Co	$10\frac{1}{2}$	$4\frac{1}{4}$	315	90	2133–$10\frac{1}{2}$	Del	D	1	LI	Mec	17	48'10"	46'0"	19.0	RBB	Sag	24.0	29.1	In	Sag	RBB	17.5	22.5	BC	LP	R	Tr	2
Star Chief, Bonneville	IBC	Co	$10\frac{1}{2}$	$4\frac{1}{4}$	315	90	2133–$10\frac{1}{2}$	Del	D	1	LI	Mec	$16\frac{1}{2}$	49'5"	46'8"	19.0	RBB	Sag	24.0	29.1	In	Sag	RBB	17.5	22.5	BC	LP	R	Tr	2
Tempest	IBC	Co	$9\frac{7}{16}$	$3\frac{11}{16}$	238	75	1432	Del	D	1	N	Mec	16	43'4"	41'0"	19.0	RBB	Sag	24.0	23.6	Lk	Sag	RBB	24.0	23.6	BC	LP	F	Tr	2
STUDEBAKER-PACKARD CORP.																															
Studebaker—Lark-6	ICS	Co	10	$4\frac{1}{2}$	150	67	1125–10	Gab	D	1	LI	Mec	17	40'0"	37'6"	17.5	RB	Sag	20.0	28.0	Lk	B-E	RB	20.0	26.5	BC	CP	R	Lg	2
Lark-8	ICS	Co	$10\frac{7}{8}$	$4\frac{1}{2}$	180	78	1290–$10\frac{7}{8}$	Gab	D	1	LI	Mec	17	40'0"	37'6"	17.5	RB	Sag	20.0	28.0	Lk	B-E	RB	20.0	26.5	BC	CP	R	Lg	2
Hawk	ICS	Co	$10\frac{7}{8}$	$4\frac{1}{2}$	180	78	1290–$10\frac{7}{8}$	Gab	D	1	LI	Mec	17	45'4"	42'6"	17.5	CL	Ro	22.0	27.5	Lk	B-E	CL	22.0	27.5	BC	CP	R	Lg	2

ABBREVIATIONS

BC—Belt from crankshaft pulley.
B-E—Bendix cylinder and Eaton pump.
Ben—Bendix. **BNS**—Ball nut sector.
BN—Ball nut. **BS**—Ball and socket
CL—Cam and single lever roller stud.
Co—Coil. **CP**—Center point.
Cr—Crankshaft mounted.
D—Direct acting.
Del—Delco. **For**—Forge.
F—Front. **Gab**—Gabriel.
Fo—Ford. **Gem**—Gemmer.
G-F—Gabriel in front and Ford in rear.
IBC—Independent with ball joints and coil springs.
ICS—Independent coil suspension.
IDC—Independent direct action coil springs. **In**—Integral.
ITB—Independent, lateral, non-parallel control arms with torsion bars.
L—Left side. **Lg**—Longitudinal.
Li—Link. **Lk**—Linkage power assist.
LI—Linkless. **Lp**—Link parallelogram.
Mec—Mechanical. **Mon**—Monroe.
M-T—Monroe cylinder and Thompson pump.
N—None. **NA**—Not applicable.
Par—Parallelogram; equal length tie rods.
PDL—Parallel drag link.
Pow—Power. **PR**—Parallel relay.
R—Rear. **RB**—Recirculating ball.
RBB—Recirculating ball bearing.
RBN—Recirculating ball nut.
Re—Relay. **RS**—Rack and sector.
Ro—Ross. **RV**—Rotary valve.
Sag—Saginaw.
SIA—Symmetrical idler arm; equal length tie rods.
SRB—Semi-reversible, recirculating ball.
SWB—Semi-reversible worm and ball bearing sector.
TB—Torsion bars. **Tub**—Tubular.
Tr—Transverse. **Var**—Various.
WBN—Worm and ball nut.
WR—Worm and roller.
WTR—Worm and three tooth roller.

For Directory of Car Manufacturers listed above, see Page 53

WHEEL ALIGNMENT, AND REAR SUSPENSION

PASSENGER CAR MAKE AND MODEL	ALIGNMENT: Steering Axis: Inclination at Camber (deg.)	Bearings: Upper	Bearings: Lower	Bearings: Thrust	Wheel Alignment: Caster (deg.)	Wheel Alignment: Camber (deg.)	Wheel Alignment: Toe In (Outside tread—in.)	Steering Spindle and Joint Type	Wheel Spindle: Diameter: Inner Bearing	Wheel Spindle: Diameter: Outer Bearing	Wheel Spindle: Thread Size	Wheel Spindle: Bearing Type	REAR SUSPENSION: Spring: Type	Spring: Type	Spring: Material	Spring: Size: Length or Height	Spring: Size: Width or Bar Diameter	Spring: Size: No. of Leaves or Coil I. D.	Spring: Spring Rate (lb. per in.)	Spring: Rate at Wheel (lb. per in.)	Spring: Design Load (lb. at design height)	Shock Absorbers: Make	Shock Absorbers: Type	Shock Absorbers: Piston Diameter
AMERICAN MOTORS CORP.																								
Rambler American	8½° @ 0°	NB	Th	Ba	0 to ½P	¼N to ¼P	1/16 to 3/16	IK	1.2500	.7500	¾-16	TR	Ho	Le	5155	45	1¾	5	100	100	650-1 1/16	Mon	D	1
Classic-6	6° 41′ @ 0°	Bu	Th	Ba	0 to ½P	¼N to ¼P	1/16 to 3/16	IK	1.2500	.7500	¾-16	TR	TC	Co	9260	10½	.....	47/8	96	96	770-	Mon	D	1
Classic-8	6° 41′ @ 0°	NB	Th	Ba	0 to ½P	¼N to ¼P	1/16 to 3/16	IK	1.2500	.7500	¾-16	TR	TC	Co	9260	10½	.....	47/8	96	96	770-	Gab	D	1
Ambassador	6° 41′ @ 0°	NB	Th	Ba	0 to ½P	¼N to ¼P	1/16 to 1/16	IK	1.2500	.7500	¾-16	TR	TC	Co	9260	10½	.....	47/8	100	100	900-	Gab	D	1
CHECKER MOTORS CORP.																								
Checker Superba, Marathon	7° @ 1°	BJ	BJ	BJ	2P	½P to 1½P	1/16 to 1/8	BJ	1.2497	.7497	¾-16	TR	SE	Le	HAS	56	2	5	90	105	800-	Gab	D	1 5/8
CHRYSLER CORP.																								
Chrysler Newport, Windsor	6½° @ 0°	BJ	BJ	Bu	0 to 1N	¼P to ¾P1	1/16 to 3/16	BJ	1.2500	.7500	¾-16	TR	LL	Le	St	57	2½	5	95	135	760-3/8L	Own	D	1
New Yorker	6½° @ 0°	BJ	BJ	Bu	¼P to 1¼P	¼P to ¾P1	1/16 to 3/16	BJ	1.2500	.7500	¾-16	TR	LL	Le	St	60	2½	7	90	135	800-3/8L	Own	D	1
300-G	6½° @ 0°	BJ	BJ	Bu	¼P to 1¼P	¼P to ¾P1	1/16 to 3/16	BJ	1.2500	.7500	¾-16	TR	LL	Le	St	60	2½	7	135	190	700-3/8L	Own	D	1 5/8
De Soto	6½° @ 0°	BJ	BJ	Bu	0 to 1N	¼P to ¾P1	1/16 to 3/16	BJ	1.2500	.7500	¾-16	TR	LL	Le	St	57	2½	5	95	135	720-3/8L	Own	D	1
Dodge Polara	6½° @ 0°	BJ	BJ	Bu	0 to 1N	¼P to ¾P1	1/16 to 3/16	BJ	1.2500	.7500	¾-16	TR	LL	Le	St	57	2½	5	95	135	720-3/8L	Own	D	1
Dodge Dart Seneca, Pioneer, Phoenix-6	6½° @ 0°	BJ	BJ	Bu	0 to 1N	¼P to ¾P1	1/16 to 3/16	BJ	1.2500	.7500	¾-16	TR	LL	Le	St	55	2½	5	95	130	720-3/8L	Own	D	1
Seneca, Pioneer, Phoenix-8	6½° @ 0°	BJ	BJ	Bu	0 to 1N	¼P to ¾P1	1/16 to 3/16	BJ	1.2500	.7500	¾-16	TR	LL	Le	St	55	2½	5	95	135	720-3/8L	Own	D	1
Dodge Lancer 170, 770	7½° @ 0°	BJ	BJ	Bu	0 to 1N	¼P to ¾P1	1/16 to 3/16	BJ	1.0625	.6875	¾-24	TR	LL	Le	St	55	2½	4	90	125	530-3/8L	Own	D	1
Imperial Custom, Crown, Le Baron	6½° @ 0°	BJ	BJ	Bu	¼P to 1¼P	¼P to ¾P1	1/16 to 3/16	BJ	1.3750	.8440	¾-16	TR	LL	Le	St	60	2½	6	90	140	920-3/8L	Own	D	1
Plymouth Savoy, Belvedere, Fury-6	6½° @ 0°	BJ	BJ	Bu	0 to 1N	¼P to ¾P1	1/16 to 3/16	BJ	1.2500	.7500	¾-16	TR	LL	Le	St	55	2½	5	93	130	720-3/8L	Own	D	1
Savoy, Belvedere, Fury-8	6½° @ 0°	BJ	BJ	Bu	0 to 1N	¼P to ¾P1	1/16 to 3/16	BJ	1.2500	.7500	¾-16	TR	LL	Le	St	55	2½	5	95	135	720-3/8L	Own	D	1
Valiant V-100, V-200	7½° @ 0°	BJ	BJ	Bu	0 to 1N	¼P to ¾P1	1/16 to 1/16	BJ	1.0625	.6875	1-24	TR	LL	Le	St	55	2½	4	90	125	530-3/8L	Own	D	1
FORD MOTOR CO.																								
Comet	7° @ ¾°	BJ	BJ	BJ	½P to 1½P	½P to ¾P	1/16 to 1/16	BJ	1.0625	.6875	⅝-18	TR	LL	Le	5160	50	2	5	75	90	650-	G-F	D	1
Falcon	7° @ ¾°	BJ	BJ	BJ	1½P to 2P	¾P to 1¼P	1/16 to 1/16	BJ	1.0625	.6875	⅝-18	TR	LL	Le	5160	50	2	5	69	85	625-	G-F	D	1
Ford Fairlane, Fairlane 500, Galaxie	6¾° @ 1°	BJ	BJ	BJ	½N to ½P	¼P to 1P	1/16 to 1/8	BJ	1.1200	.7500	¾-16	TR	Ho	Le	5160	60	2½	4	112	110	965-	Var	D	1
Lincoln Continental	7° @ ¾°	BJ	BJ	BJ	0 to 1½N	0 to ¾P	1/16 to 1/8	BJ	1.3746	.8433	¾-16	TR	LL	Le	5155	60	2½	7	100	100	1100-	Gab	D	1 1/16
Mercury Meteor 600	6¾° @ 1°	BJ	BJ	BJ	½N to ½P	¼P to 1P	1/16 to 1/8	BJ	1.1200	.7500	¾-16	TR	Ho	Le	5160	60	2½	4	112	122	980-	Var	D	1
Meteor 800; Monterey	6¾° @ 1°	BJ	BJ	BJ	½N to ½P	¼P to 1P	1/16 to 1/8	BJ	1.1200	.7500	¾-16	TR	Ho	Le	5160	59½	2½	5	100	110	990-	Var	D	1
Thunderbird	6¾° @ 1°	BJ	BJ	BJ	¼N to 1¼N	0 to 1P	1/16 to 1/8	BJ	1.1200	.7500	¾-16	TR	Ho	Le	5160	60	2½	4	105	105	880-	Gab	D	1 1/16
GENERAL MOTORS CORP.																								
Buick Special	7½° @ ¼°	BJ	BJ	BJ	¾N to 1¾N	¾N to ¾P	1/16 to 1/16	BJ	1.2495	.7494	⅝-24	TR	CS	Co	9260	9½	.....	3½	172	100	950-	Del	D	1
Le Sabre, Invicta	9° 52′ @ 50′	BJ	BJ	BJ	½N to 1½N	0 to ¾P	1/16 to 1/4	BJ	1.3746	.8433	⅞-16	TR	CS	Co	9260	13½	.....	4⅝	205	121	1500-	Del	D	1
Electra, Electra 225	9° 52′ @ 50′	BJ	BJ	BJ	½N to 1½N	0 to ¾P	1/16 to 1/4	BJ	1.3746	.8433	⅞-16	TR	CS	Co	9260	13½	.....	4⅝	215	127	1555-	Del	D	1
Cadillac 60, 62, 63	6° @ 0°	BJ	BJ	BJ	½N to 1½N	1/16 to ¾P2	1/16 to 1/4	BJ	1.3455	.8433	¾-20	TR	Li	Co	9260	8½	.....	5½	265	167	1960-	Del	D	1
75	6° @ 0°	BJ	BJ	BJ	½N to 1½N	1/16 to ¾P2	1/16 to 1/4	BJ	1.3455	.8433	¾-20	TR	Li	Co	9260	9½	.....	5½	265	167	1960-	Del	D	1
Chevrolet Biscayne, Biscayne Fleetmaster, Bel Air, Impala-6	7° 11′	BJ	BJ	BJ	½N to ½P	0 to 1P	1/16 to 1/16	.....	1.2495	.7494	¾-20	TR	CS	Co	HAS	9⅞	.....	3¹⁵	265	112	1560-9⅞	Del	D	1
Biscayne, Biscayne Fleetmaster, Be' Air, Impala-8	7° 11′	BJ	BJ	BJ	½N to ½P	0 to 1P	1/16 to 1/16	.....	1.2495	.7494	¾-20	TR	CS	Co	HAS	9⅞	.....	3⅝	230	101	1560-9⅞	Del	D	1
Corvair 500, 700, 900	7°	BJ	BJ	No	3P to 3½P	0 to 1P	1/32 to 1/16	.....	1.0621	.6871	1-24	TR	CS	Co	HAS	7 11/32	.....	3 11/32	425	117	1575-7 11/32	Del	D	1
Corvette	4°	Bu	Bu	Ba	1½P to 2½P	½N to ½P	0 to 1/8	RE	1.2804	.7493	¾-20	Ba	LL	Le	AS	51	2	4	115	.....	605-4	Del	D	1
Oldsmobile F-85	7½° @ 0°	BJ	BJ	BJ	½N to 1½N	0 to ¾P	1/16	BJ	1.2495	.7494	⅝-24	TR	CS	Co	9260	9½	.....	3½	172	100	1025-9½	Del	D	1
88, Super 88	10° @ 1°	BJ	BJ	BJ	0 to 1N	¼N to ¾P	0 to 1/8	BJ	1.3739	.8430	⅞-16	BC	CS	Co	5160	8⅝	.....	5½	115	115	1090-	Del	D	1
98	10° @ 1°	BJ	BJ	BJ	0 to 1N	¼N to ¾P	0 to 1/8	BJ	1.3739	.8430	⅞-16	BC	CS	Co	5160	8⅝	.....	5½	115	115	1170-	Del	D	1
Pontiac Catalina, Ventura	4° 50′ @ 0°	BJ	BJ	BJ	1N to 2N	¼N to ¾P	0 to 1/8	BJ	1.2490	.7490	¾-20	Ba	Li	Co	9260	7½	.....	5½	122	110	1060-	Del	D	1
Star Chief, Bonneville	4° 50′ @ 0°	BJ	BJ	BJ	1N to 2N	¼N to ¾P	0 to 1/8	BJ	1.2490	.7490	¾-20	Ba	Li	Co	9260	7½	.....	5½	135	122	1070-	Del	D	1
Tempest	6° 50′ @ 0°	BJ	BJ	BJ	1¼N to 2¼N	¼P to 1¼P	0 to 1/8	BJ	1.2490	.7490	¾-20	TR	CS	Co	9260	8⅝	.....	3½	407	130	1470-	Del	D	1
STUDEBAKER PACKARD CORP.																								
Studebaker Lark	6° @ 0°	Bu	NB	Ba	¾N to ¾P	½P to 1½P3	1/16 to 1/16	RE	1.2500	.7500	¾-16	TR	SE	Le	5160	51	2½	4	88	108	700-	Gab	D	1
Hawk	6° @ 0°	Bu	NB	Ba	1N to 2½N	½P to 1½P3	1/16 to 1/16	RE	1.2500	.7500	¾-16	TR	SE	Le	5160	54	2½	5	90	100	700-	Gab	D	1

ABBREVIATIONS

1—Left only; right, 0 to ½P.
2—Left only; right, ⅛N to ⅜N.
3—Left only; right, 0 to 1P.
AS—Alloy steel.
Ba—Ball bearings.
BC—Ball and cone.
BJ—Ball joint.
Bu—Bushings.
Co—Coil.
CS—Coil springs.
D—Direct.
Del—Delco.
Gab—Gabriel.
G-F—Gabriel in front and Ford in rear.
HAS—High alloy steel.
Ho—Hotchkiss.
IK—Integral with kingpin.
L—Left side only.
Le—Leaf.
Li—Link.
LL—Parallel, longitudinal leaf.
Mon—Monroe.
N—Negative.
NB—Needle bearings.
No—None.
P—Positive.
RE—Reverse Elliot.
SE—Semi-elliptic, assymmetric.
St—Steel.
TC—Torque tube drive with coil springs.
Th—Threaded.
TR—Tapered roller.
Var—Various.

For Directory of Car Manufacturers listed above, see Page 53

1961.... FOREIGN PASSENGER CARS

MAKE AND MODEL	Location in Chassis	Number of Cylinders Bore and Stroke (In.)	Max. Brake Horsepower at Specified R.P.M.	Piston Displacement (Cu. In.)	Compression Ratio (To – 1)	Cylinder Arrangement	Valve Location	Wheelbase (In.)	TREAD (In.) Front	TREAD (In.) Rear	OVERALL DIMENSIONS (In.) Length Including Bumpers and Bumper Guards	OVERALL DIMENSIONS (In.) Width	OVERALL DIMENSIONS (In.) Height—Road to Roof, No Load	Tires (In.)	Shipping Weight (Lbs.)	Carburetor—No. Used and Type	Cooling Medium	Shifting Method	No. of Forward Speeds	Final Drive Type	Front Suspension Type	Rear Suspension Type	Service Brakes	Cooling System Capacity (Qt.)	Fuel Tank Capacity (Gal.)
GREAT BRITAIN																									
A.C. Ace	Fr	6-2.54x3.90	102-5000	121.4	9.00	IL	IH	90.0	50.0	50.0	151.5	59.5	52.0	5.50/16	1685	3-Ho	W	HS	4	Hy	LS	LS	H	8½	15.7
Ace	Fr	6-2.58x3.74	125-5750	122.0	9.00	IL	IH	90.0	50.0	50.0	151.5	59.5	52.0	5.50/16	1685	3-DD	W	HS	4	Hy	LS	LS	H	8½	15.7
Aceca	Fr	6-2.54x3.90	102-5000	121.4	9.00	IL	IH	90.0	50.0	50.0	160.0	61.0	52.0	5.50/16	1840	3-Ho	W	HS	4	Hy	LS	LS	H	8½	15.7
Aceca	Fr	6-2.60x3.78	105-4750	121.5	8.50	IL	IH	90.0	50.0	50.0	160.0	61.0	52.0	5.50/16	1840	3-	W	HS	4	Hy	LS	LS	H	8½	15.7
Aceca	Fr	6-2.58x3.74	125-5750	122.0	9.00	IL	IH	90.0	50.0	50.0	160.0	61.0	52.0	5.50/16	2178	3-DD	W	HS	4	Hy	LS	LS	H	8½	15.7
Greyhound	Fr	6-2.54x3.90	102-5000	121.4	9.00	IL	IH	100.0	54.0	54.0	180.0	65.3	52.8	5.50/16	2240	3-Ho	W	HS	4	Hy	CS	CS	H	8½	.....
Greyhound	Fr	6-2.60x3.78	105-4750	121.5	8.50	IL	IH	100.0	54.0	54.0	180.0	65.3	52.8	5.50/16	2240	3-	W	HS	4	Hy	CS	CS	H	8½	.....
Greyhound	Fr	6-2.58x3.74	125-5750	122.0	9.00	IL	IH	100.0	54.0	54.0	180.0	65.3	52.8	5.50/16	2240	3-DD	W	HS	4	Hy	CS	CS	H	8½	.....
Alvis TD-21 (Saloon)	Fr	6-3.31x3.54	115-4000	182.6	8.50	IL	IH	111.5	55.8	54.3	188.5	66.0	60.0	6.00/15	3300	2-SS	W	HA	4	Hy	CS	LS	H	12	17.2
TD-21 (Coupe)	Fr	6-3.31x3.54	115-4000	182.6	8.50	IL	IH	111.5	55.8	54.3	188.5	66.0	59.0	6.40/15	....	2-SS	W	HA	4	Hy	CS	LS	H	12	17.2
Aston Martin DB4	Fr	6-3.62x3.62	240-5500	223.8	8.25	IL	TO	98.0	54.0	53.5	176.4	66.0	52.0	6.00/16	2968	2-SS	W	HS	4	Hk	CS	CS	HV	17	22.8
DB4-GT	Fr	6-3.62x3.62	302-6000	223.8	9.00	IL	TO	93.0	54.0	53.5	171.4	66.0	52.0	6.00/16	2800	3-DS	W	HS	4	Hk	CS	CS	H	17	36.0
Austin 7	Fr	4-2.48x2.69	34-5500	51.7	8.30	IL	IH	80.0	47.8	45.9	120.3	55.5	53.0	5.20/10	1267	1-Sm	W	HS	4	(1)	RS	RS	H	3½	6.6
A55	Fr	4-2.88x3.50	53-4350	90.9	8.30	IL	IH	99.2	48.6	49.9	178.1	63.5	59.8	5.90/14	2307	1-Sm	W	HS	4	Hy	CS	LS	H	7½	12.0
A99	Fr	6-3.28x3.50	108-4750	177.7	8.23	IL	IH	108.0	54.0	53.3	187.5	68.5	60.5	7.00/14	3233	2-Sd	W	HA	3	Hy	CS	LS	H	12½	19.2
A40	Fr	4-2.48x3.00	34-4800	57.9	8.30	IL	IH	83.5	47.0	47.0	146.0	59.4	56.8	5.20/13	....	1-SS	W	HS	4	Hy	CS	LS	H	5	7.0
Austin-Healey 3000	Fr	6-3.28x3.50	124-4600	177.7	9.03	IL	IH	91.7	48.8	50.0	157.6	60.0	49.0	5.90/15	2381	2-Sd	W	HS	4	Hy	CS	LS	H	11½	14.4
Sprite	Fr	4-2.48x3.00	43-5000	57.9	8.30	IL	IH	80.0	45.8	44.8	139.5	53.0	49.8	5.20/13	....	2-Sm	W	HS	4	Hy	CS	LS	H	6	7.2
Bentley S2	Fr	8-4.10x3.60	.....	380.2	8.00	V	IH	123.0	58.5	60.0	211.8	74.8	64.0	8.20/15	4480	2-SS	W	Au	4	Hk	CT	LS	HM	12½	21.6
Continental S2	Fr	8-4.10x3.60	.....	380.2	8.00	V	IH	123.0	58.5	60.0	212.0	73.5	59.0	8.00/15	4424	2-SS	W	Au	4	Hk	CT	LS	HM	12½	21.6
Berkeley B95	Fr	2-2.71x3.51	40-5500	42.2	7.25	IL	IH	70.0	42.5	42.0	125.5	50.0	46.0	5.20/12	924	1-SS	A	HS	4	Ch	CS	CS	H	N	6.6
B105	Fr	2-2.71x3.51	50-6250	42.2	8.00	IL	IH	70.0	42.5	42.0	125.5	50.0	46.0	5.20/12	924	.....	A	HS	4	Ch	CS	CS	H	N	6.6
B65	Fr	2-2.26x2.42	18-5000	20.0	7.50			70.0	42.5	42.0	123.0	50.0	46.0	5.20/12	784	.....	A	HS	4	Ch	CS	CS	H	.....	5.5
Bandit	Fr	4-3.18x1.90	39-5000	60.8	8.90	IL	IH	82.0	46.0	46.0	145.0	54.0	44.0	5.60/13	....	1-SD	W	HS	4	TT	CS	CS	H	6¼	9.0
Bristol 406	Fr	6-2.70x3.92	105-4700	135.0	8.50	IL	IH	114.0	53.0	56.0	198.0	68.0	60.0	6.00/16	....	4-SD	W	HS	5	Hk	LS	TB	H	8	18.0
Daimler Majestic	Fr	6-3.40x4.25	147-4400	231.0	7.50	IL	IH	114.0	56.0	57.0	196.0	73.3	62.3	6.50/16	3864	2-SS	W	Au	3	Hk	CS	CS	HV	11¾	18.0
SP250	Fr	8-3.00x2.75	140-5800	152.5	8.20	V	IH	92.0	50.0	48.0	168.0	60.5	51.0	5.90/15	2090	2-Sm	W	HS	4	Hk	CS	LS	H	13	14.0
DQ450	Fr	8-3.75x3.15	220-5500	278.3	8.00	V	IH	114.0	57.0	57.0	202.0	73.3	62.3	7.00/16	....	2-SSm	W	Au	3	Hk	CS	LS	H	15	19.0
Fairthorpe Electron Minor	Fr	4-2.48x2.99	42-5000	57.8	8.50	IL	IH	81.0	49.0	48.5	132.0	58.0	46.0	5.60/13	895	2-SS	W	HS	4	Hk	CS	CS	H	5	10.0
Electron	Fr	4-2.85x2.63	93-6800	67.0	10.50	IL	OC	82.0	49.0	45.5	138.0	58.0	46.0	5.20/15	1150	2-SS	W	HS	4	Hk	CS	CS	H	5	10.0
Zeta	Fr	6-3.25x3.13	.....	155.8	.....	IL	IH	.....	.....	45.0	.....	.....	.....	.....	....	6-Sd	W	HS	4	Hk	CS	CS	H	.....	10.0
Electrina	Fr	4-2.48x2.99	51-6000	57.8	8.50	IL	IH	82.0	48.0	48.0	147.0	58.0	52.0	5.60/13	....	2-Sd	W	HS	4	Hk	CS	CS	H	4	10.0
Ford Escort	Fr	4-2.50x3.64	38-4500	71.6	7.00	IL	L	87.0	48.0	47.5	140.4	60.8	62.8	5.60/13	1781	1-SD	W	HS	3	Hk	CS	LS	H	7	8.4
Prefect	Fr	4-3.19x1.91	41-5000	60.8	8.90	IL	IH	87.0	48.0	47.5	149.7	60.6	59.4	5.20/13	1715	1-SD	W	HS	4	Hk	CS	LS	H	7	8.4
Anglia	Fr	4-3.19x1.91	41-5000	60.8	8.90	IL	IH	90.5	46.0	45.8	153.5	57.3	56.6	5.20/13	1560	1-SD	W	HS	4	Hk	CS	LS	H	6	8.4
Consul Mk. II	Fr	4-3.25x3.13	61-4400	103.9	7.80	IL	IH	104.5	53.0	52.0	171.8	68.6	60.1	5.90/13	2397	1-SD	W	HS	3	Hk	CS	LS	H	10¾	12.7
Zephyr Mk. II	Fr	6-3.25x3.13	90-4400	155.8	7.80	IL	IH	107.0	53.0	52.0	179.0	68.9	60.6	6.40/13	2562	1-SD	W	HS	3	Hk	CS	LS	H	13¼	12.7
Zodiac	Fr	6-3.25x3.13	90-4400	155.8	7.80	IL	IH	107.0	53.0	52.0	180.6	68.9	60.6	6.40/13	2624	1-SD	W	HS	3	Hk	CS	LS	H	13¼	12.7
Frazer-Nash Gran Turismo	Fr	8-3.23x2.95	173-5000	193.3	8.20	V	IH	100.0	50.0	53.5	156.5	60.0	52.0	6.00/16	2016	2-Do	W	HS	4	SB	CS	TB	H	11¼	18.1
Gran Turismo	Fr	8-2.91x2.95	140-4800	157.3	7.80	V	IH	100.0	50.0	53.5	156.5	60.0	52.0	6.00/16	2016	2-Do	W	HS	4	SB	CS	TB	H	11¼	18.1
Spyder	Fr	8-3.23x2.95	173-5000	193.3	8.20	V	IH	100.0	50.0	53.5	156.5	60.0	52.0	6.00/16	1792	2-Do	W	HS	4	SB	CS	TB	H	11¼	18.1
Spyder	Fr	8-2.91x2.95	140-4800	157.3	7.80	V	IH	100.0	50.0	53.5	156.5	60.0	52.0	6.00/16	1792	2-Do	W	HS	4	SB	CS	TB	H	11¼	18.1
Hillman Minx Ser. III B	Fr	4-3.11x3.00	57-4600	91.2	8.50	IL	IH	98.0	49.0	48.5	162.7	60.8	59.5	5.60/15	2172	1-SD	W	HA	4	Hy	CS	LS	H	7½	8.7
Husky Ser. II	Fr	4-3.00x3.00	51-4400	84.8	8.00	IL	IH	86.0	49.0	48.5	149.5	60.5	59.5	5.60/15	....	1-SD	W	HS	4	Hy	CS	LS	H	7½	7.5
Humber Hawk Ser. II	Fr	4-3.19x4.33	78-4400	138.2	7.50	IL	IH	110.0	56.9	55.5	184.8	69.5	61.0	6.40/15	....	1-Do	W	HA	4	Hy	CS	LS	HV	12½	15.0
Super Snipe Ser. III	Fr	6-3.44x3.25	130-4800	180.9	8.00	IL	IH	110.0	56.9	55.5	188.0	69.5	61.0	6.70/15	....	1-Do	W	HA	3	Hy	CS	LS	HV	15½	15.0
Jaguar 2.4 Litre Mk. 2	Fr	6-3.27x3.01	120-5750	151.5	8.00	IL	OC	107.4	55.4	53.8	180.8	66.8	56.5	6.40/15	3089	2-SD	W	HA	4	Hk	CS	LS	HV	12	14.5
3.4 Litre Mk. 2	Fr	6-3.27x4.17	210-5500	210.0	8.00	IL	OC	107.4	55.4	53.8	180.8	66.8	56.5	6.40/15	3169	2-SS	W	HA	4	Hk	CS	LS	HV	13¼	14.5
3.8 Litre Mk. 2	Fr	6-3.43x4.17	220-5500	230.6	8.00	IL	OC	107.4	55.4	53.8	180.8	66.8	56.5	6.40/15	3169	2-SS	W	HA	4	Hk	CS	LS	HV	13¼	14.5
3.4 Litre XK 150	Fr	6-3.27x4.17	210-5500	210.0	8.00	IL	OC	102.0	51.6	51.6	176.5	64.5	55.0	6.00/16	3080	2-SS	W	HA	4	Hk	TB	LS	HV	13¾	16.8
3.8 Litre XK 150	Fr	6-3.43x4.17	220-5500	230.6	8.00	IL	OC	102.0	51.6	51.6	176.5	64.5	55.0	6.00/16	3080	2-SS	W	HA	4	Hk	TB	LS	HV	13¾	16.8
3.8 Litre Mk. IX	Fr	6-3.43x4.17	220-5500	230.6	8.00	IL	OC	120.0	57.0	58.0	196.5	73.0	63.0	6.70/16	3780	2-SS	W	HA	4	Hk	TB	LS	HV	13¼	20.5
3.4 Litre XK 150-S	Fr	6-3.27x4.17	250-5500	210.0	9.00	IL	OC	102.0	51.6	51.6	176.5	64.5	52.5	6.00/16	3050	3-SS	W	HS	5	Hk	TB	LS	HV	13¾	16.8
3.8 Litre XK 150-S	Fr	6-3.43x4.17	265-5500	230.6	9.00	IL	OC	102.0	51.6	51.6	176.5	64.5	52.5	6.00/16	3050	3-SS	W	HS	5	Hk	TB	LS	HV	13¾	16.8
Jensen 541-S	Fr	6-3.40x4.37	.....	243.0	7.40	IL	IH	105.0	54.6	55.3	177.5	67.0	54.4	6.40/15	3136	3-SS	W	HS	4	Hk	CS	LS	H	12½	18.1
Lotus Seven	Fr	4-2.48x3.00	43-5200	57.8	8.30	IL	IH	88.0	46.0	46.5	132.0	53.0	38.0	5.20/15	....	2-SS	W	HS	4	Hk	CS	CS	H	8	7.2
Elite	Fr	4-3.00x2.63	75-6100	74.2	10.00	IL	OC	88.0	47.0	47.0	150.0	58.0	46.0	4.50/15	....	1-SS	W	HS	4	Hk	CS	CS	H	6	6.5
Elite	Fr	4-3.00x2.63	95-6800	74.2	10.50	IL	OC	88.0	47.0	47.0	150.0	58.0	46.0	4.80/15	....	2-SS	W	HS	4	Hk	CS	CS	H	6	9.0
Metropolitan 1500	Fr	4-2.88x3.50	51-4250	90.9	8.30	IL	IH	85.0	45.3	44.8	149.5	61.5	56.0	5.60/13	....	1-Do	W	HS	3	Hy	CS	LS	H	7	10.5
MG Magnette III	Fr	4-2.88x3.50	64-5000	90.9	8.30	IL	IH	99.2	48.9	49.9	178.1	63.5	59.8	5.90/14	2422	2-Sm	W	HS	4	Hk	CS	LS	H	7½	12.0
MGA 1600	Fr	4-2.87x3.50	80-5600	96.8	8.30	IL	IH	94.0	47.5	48.8	156.0	57.3	50.0	5.60/15	1984	2-Sm	W	HS	4	Hk	CS	LS	H	6	12.0
Morgan 4/4 Ser. III	Fr	4-3.19x1.91	39-5000	60.8	8.90	IL	IH	98.0	47.0	47.0	152.0	56.0	50.0	5.20/15	1456	1-SD	W	HS	4	Hk	CS	LS	H	6	8.5
Plus 4	Fr	4-3.27x3.62	100-5000	121.5	8.50	IL	IH	96.0	47.0	47.0	152.0	56.0	50.0	5.60/15	1848	2-SSh	W	HS	4	Hk	CS	LS	H	8	12.0
Morris Mini-Minor	Fr	4-2.48x2.69	34-5500	51.7	8.30	IL	IH	80.0	47.8	45.9	120.0	55.0	53.0	5.20/10	1230	1-Sm	W	HS	4	(1)	RS	RS	H	3½	6.6
Oxford Series V	Fr	4-2.88x3.50	53-4350	90.9	8.30	IL	IH	99.2	48.9	49.9	178.1	63.5	59.8	5.90/14	2339	1-SSm	W	HS	4	Hk	CS	LS	H	7½	12.0
1000	Fr	4-2.45x2.96	37-5000	57.8	8.30	IL	IH	86.0	50.6	50.3	148.0	61.0	60.0	5.00/14	1708	1-Sm	W	HS	4	Hy	TB	LS	H	6	7.8
Mini Traveller	Fr	4-2.48x2.69	34-5500	51.7	8.30	IL	IH	81.2	47.4	45.9	129.9	55.5	53.5	5.20/10	....	1-Sm	W	HS	4	(1)	RS	RS	H	3½	6.6
Oxford Traveller Ser. V	Fr	4-2.88x3.50	53-4350	90.9	8.30	IL	IH	99.2	48.9	49.9	178.1	63.5	60.0	6.40/14	....	1-Sm	W	HS	4	Hy	CS	LS	H	7½	12.0
Noble 200	R	1-2.54x2.26	10-5250	9.1	6.60	S	N	82.0	47.0	48.0	125.0	55.0	51.0	4.40/8	683	1-SS	A	HS	4	Ch	CL	CS	M	N	3.8

For Abbreviations, see page 132

For Directory of Car Manufacturers listed above, see Page 53

FOREIGN PASSENGER CARS—*continued*

MAKE AND MODEL	ENGINE: Location in Chassis	Number of Cylinders Bore and Stroke (In.)	Max. Brake Horsepower at Specified R.P.M.	Piston Displacement (Cu. In.)	Compression Ratio (To —1)	Cylinder Arrangement	Valve Location	CHASSIS: Wheelbase (In.)	TREAD (In.): Front	TREAD (In.): Rear	OVERALL DIMENSIONS (In.): Length Including Bumpers and Bumper Guards	OVERALL DIMENSIONS (In.): Width	OVERALL DIMENSIONS (In.): Height—Road to Roof, No Load	Tires (In.)	Shipping Weight (Lbs.)	Carburetor—No. Used and Type	Cooling Medium	Shifting Method	No. of Forward Speeds	Final Drive Type	Front Suspension Type	Rear Suspension Type	Service Brakes	Cooling System Capacity (Qt.)	Fuel Tank Capacity (Gal.)
GREAT BRITAIN—*continued*																									
Princess 3 Litre Saloon	Fr	6-3.28x3.50	108-4750	177.7	8.30	IL	IH	108.0	54.0	58.5	188.5	68.5	59.0	7.00/14	3490	2-	W	HA	3	Hy	CS	LS	HV	10¼	16.0
4 Litre Lim. & Saloon	Fr	6-3.44x4.38	120-4000	243.0	6.80	IL	IH	132.0	53.3	62.5	215.0	74.0	70.0	7.00/16	4680	1-	W	HA	4		CS	LS	H	13¾	16.0
Riley 4/68	Fr	4-2.88x3.50	64-5000	90.9	8.30	IL	IH	99.2	48.9	49.9	178.1	63.5	59.8	5.90/14	2425	2-Sm	W	HS	4	Hk	CS	LS	H	7½	12.0
Rolls Royce Silver Cloud II	Fr	8-4.10x3.60		380.2	8.00	V	IH	123.0	58.5	60.0	211.8	74.8	64.0	8.20/15	4480	2-SS	W	Au	4	Hk	CT	LS	HM	12½	21.6
Phantom V	Fr	8-4.10x3.60		380.2	8.00	V	IH	145.0	60.9	64.0	238.0	79.0	69.0	8.90/15	5411	2-SS	W	Au	4	Hk	CT	LS	HM	13¾	28.8
Rover 80	Fr	4-3.56x3.50	77-4250	139.2	7.00	IL	F	111.0	52.5	51.5	178.3	65.6	63.8	6.40/15	3186	1-SD	W	HS	5	Hk	CS	LS	HV	8¾	11.5
100	Fr	6-3.06x3.63	104-4750	160.3	7.80	IL	F	111.0	52.5	51.5	178.3	65.6	63.8	6.40/15	3241	1-SS	W	HS	5	Hk	CS	LS	HV	11¾	11.5
3 Litre	Fr	6-3.06x4.13	115-4500	182.7	8.75	IL	F	110.5	55.0	56.0	186.5	70.0	60.3	6.70/15	3490	1-SS	W	HA	5	Hk	TB	LS	HV	11¼	14.0
Singer Gazelle Ser. III B	Fr	4-3.11x3.00	60-4500	91.2	8.50	IL	IH	96.0	49.0	48.5	163.5	60.8	59.5	5.60/15	2226	1-SD	W	HA	4	Hy	CS	LS	H	7¾	12.0
Standard Ensign	Fr	4-2.99x3.62	80-4000	102.0	8.00	IL	IH	102.0	51.5	51.5	171.5	67.5	60.0	5.90/15		1-SD	W	HS	4	Hk	CS	LS	H	8½	14.4
Vanguard Vignale Es. Cr.	Fr	4-3.35x3.62	68-4000	127.6	7.50	IL	IH	102.0	51.0	51.0	170.5	67.5	60.0	5.50/16		1-SD	W	HA	4	Hk	CS	LS	H	8½	14.4
Vanguard Vignale	Fr	4-3.35x3.62	68-4000	127.6	7.50	IL	IH	102.0	51.5	51.5	172.0	67.5	60.0	5.90/15		1-SD	W	HA	4	Hk	CS	LS	H	8½	14.4
Vanguard Lux. 6 Saloon	Fr	6-2.94x2.99	85-4500	122.0	8.00	IL	IH	102.0	51.5	51.5	171.5	67.5	60.0	5.90/15		2-SD	W	HS	4	Hk	CS	LS	H	8½	14.4
Vanguard Lux. 6 Es. Cr.	Fr	6-2.94x2.99	85-4500	122.0	8.00	IL	IH	102.0	51.0	51.0	171.5	67.5	60.0	5.50/16		2-Do	W	HS	4	Hk	CS	LS	H	8½	16.8
Sunbeam Rapier Series III	Fr	4-3.11x3.00	78-5400	91.2	9.20	IL	IH	96.0	49.8	48.5	162.5	60.8	58.0	5.60/15	2250	2-SD	W	HS	4	Hy	CS	LS	H	7¾	12.0
Alpine Series II	Fr	4-3.11x3.00	84-5300	91.2	9.20	IL	IH	86.0	51.0	48.5	155.3	60.5	51.5	5.60/13	2095	2-SD	W	HS	4	Hy	CS	LS	H	8½	10.8
Alpine II	Fr	4-3.21x3.00	85-5000	97.1	9.10	IL	IH	86.0	51.0	48.5	155.3	60.5	51.5	5.60/13	2089	2-SD	W	HS	4	Hy	CS	LS	H	8½	10.8
Triumph Station Wagon	Fr	4-2.48x2.99	39-4500	57.8	8.00	IL	IH	84.0	48.5	48.5	147.0	58.0	59.0	5.60/13	1710	1-SD	W	HS	4	Hk	CS	LS	H	4½	8.4
Herald Saloon	Fr	4-2.48x2.99	39-4500	57.8	8.00	IL	IH	91.5	48.0	48.0	153.0	60.0	52.0	5.20/13	1680	1-SD	W	HS	4	Hk	CS	LS	H	5	8.4
Herald Coupe	Fr	4-2.48x2.99	51-6000	57.8	8.50	IL	IH	91.5	48.0	48.0	153.0	60.0	51.3	5.20/13	1650	2-SS	W	HS	4	Hk	CS	LS	H	5	8.4
TR-3	Fr	4-3.27x3.62	100-5000	121.5	8.50	IL	IH	88.0	45.0	45.0	151.0	55.5	50.0	5.50/15	2010	2-SD	W	HS	4	Hk	CS	LS	H	8½	14.4
Herald Convertible	Fr	4-2.48x2.99	51-6000	57.8	8.50	IL	IH	91.5	48.0	48.0	153.0	60.0	52.0	5.20/13	1675	2-SS	W	HS	4	Hk	CS	LS	H	5	8.4
Vauxhall Victor FD	Fr	4-3.13x3.00	55-4200	92.0	7.80	IL	IH	98.0	50.0	50.0	167.8	63.5	57.9	5.90/13	2130	1-SD	W	HS	3	Hk	CS	LS	H	14	9.0
Victor FW	Fr	4-3.13x3.00	55-4200	92.0	7.80	IL	IH	98.0	50.0	50.0	167.8	63.5	58.2	5.90/13	2271	1-SD	W	HS	3	Hk	CS	LS	H	14	9.0
Warwick G. T. Two Litre	Fr	4-3.24x3.58	100-5000	121.5	8.50	IL	IH	94.5	51.0	51.0	163.0	63.0	52.0	5.50/15	2015	2-	W	HS	4	Hk	CS	LS	H		14.0
Wolseley 15/60	Fr	4-2.88x3.50	53-4350	90.9	8.30	IL	IH	99.2	48.9	49.9	178.1	63.5	59.8	5.90/14	2345	1-Sm	W	HS	4	Hk	CS	LS	H	7½	12.0
6/99	Fr	6-3.20x3.50	108-4750	177.7	8.23	IL	IH	108.0	53.8	53.3	188.0	68.5	60.0	7.00/14	3300	2-Sm	W	HA	3	Hk	CS	LS	H	12½	19.2
AUSTRALIA																									
Holden FC	Fr	6-3.00x3.13	72-4400	132.5	7.00	IL	IH	105.0	54.5	54.5	176.0	66.9	62.9	6.40/13	2390	1-SD	W	HS	3	Hk	CS	LS	H	9½	11.4
AUSTRIA																									
Steyr-Puch 500-D	R	2-2.72x2.50	16-4600	30.0	6.80	Op	IH	71.7	43.6	44.3	115.8	51.5	53.5	4.90/12		1-Do	A	HS	4		LS	CS	H	N	5.3
500-DL	R	2-2.72x2.50	20-4600	30.0	6.80	Op	IH	71.7	43.6	44.3	115.8	51.5	53.5	4.90/12		1-Do	A	HS	4		LS	CS	H	N	5.3
700-C	R	2-3.12x2.50	28-4000	41.7	7.00	Op	IH	75.7	43.7	44.3	124.0	51.5	52.8	5.25/12		1-Do	A	HS	4		LS	CS	H	N	5.3
CZECHOSLOVAKIA																									
Skoda Octavia	Fr	4-2.68x2.95	42-4500	66.6	7.50	IL	IH	94.5	47.6	49.2	160.0	63.0	56.3	5.90/15	1962	1-SD	W	HS	4	Hk	CS	LS	H	6¾	8.0
Octavia Super	Fr	4-2.83x2.95	47-4500	73.3	7.50	IL	IH	94.5	47.6	49.2	160.0	63.0	56.3	5.90/15	1962	1-SD	W	HS	4	Hk	CS	LS	H	6¾	8.0
Felicia	Fr	4-2.68x2.95	50-5500	66.6	8.40	IL	IH	94.5	47.6	49.2	160.0	63.0	56.3	5.90/15	1984	2-SD	W	HS	4	Hk	CS	LS	H	6¾	8.0
Touring Sport	Fr	4-2.68x2.95	50-5500	66.6	8.40	IL	IH	94.5	47.6	49.2	160.0	63.0	56.3	5.90/15		1-SD	W	HS	4	TT	CS	LS	H	6¾	8.0
Tatra 603	R	8-2.95x2.76	95-4800	151.0	6.50	V	IH	108.3	56.3	55.1	200.0	75.2	60.2	6.70/15		2-DD	A	HS	4	SB	CS	CS	H	N	14.5
FRANCE																									
Alpine 850	R	4-2.26x3.12	40-5200	51.5	8.00	IL	IH	85.0	47.6	47.6	155.0	58.2	48.7	5.00/15	1292	1-SD	W	HS	4	Hk	CS	CS	H	4¾	28.0
904	R	4-2.34x3.12	50-	55.1	9.80	IL	IH	85.0	47.6	47.6	155.0	58.2	48.7	5.00/15	1292	1-DD	W	HS	5	Hk	CS	CS	H	4¾	28.0
Competition 750	R	4-2.12x3.12	50-	45.5		IL	IH	85.0	47.6	47.6	155.0	58.2	48.7	5.00/15	1292		W	HS		Hk	CS	CS	H	4¾	28.0
Competition 850	R	4-2.26x3.12	59-	51.5		IL	IH	85.0	47.6	47.6	155.0	58.2	48.7	5.00/15	1292		W	HS		Hk	CS	CS	H	4¾	28.0
A-108-1000	R	4-2.50x3.12	70-6300	60.8	9.50	IL	IH	69.0	47.6	47.6	155.0	58.2	40.0	5.00/15	1160	1-DD	W	HS	5	Hk	CS	CS	H	4¾	28.0
Panhard PL-17 & Tigre	Fr	2-3.35x2.95	50-5000	51.9	7.20	Op	IH	101.0	51.3	51.3	180.0	63.0	57.5	5.60/15		1-SD	A	HS	4		LS	TB	H	N	11.0
Peugeot 403	Fr	4-3.13x2.88	65-4750	89.6	7.50	IL	IH	105.0	52.8	52.0	176.0	66.0	59.3	5.90/15	2262	1-SD	W	HS	4	TT	LS	CS	H	9½	13.3
Renault R-1062	R	4-2.15x3.15	28-4500	45.6	7.75	IL	IH	82.7	48.0	48.1	143.2	56.3	57.9	5.00/15	1268	1-Do	W	HS	3	SA	CT	CS	H	4⅝	7.3
R-1090 Dauphine	R	4-2.28x3.15	32-4250	51.6	8.00	IL	IH	89.5	49.2	48.0	156.9	60.0	56.5	5.50/15	1448	1-Do	W	HS	3	SA	CT	CS	H	4⅞	8.5
R-1091 Dauphine Gordini	R	4-2.28x3.15	40-5000	51.6	8.00	IL	IH	89.5	49.2	48.0	156.9	60.0	56.5	5.50/15	1462	1-Do	W	HS	4	SA	CT	CS	H	4⅞	8.5
R-1092 Caravelle Cpe.	R	4-2.28x3.15	40-5000	51.6	8.00	IL	IH	89.5	49.2	48.0	170.1	61.8	53.2	5.50/15	1685	1-Do	W	HS	3	SA	CT	CS	H	4⅞	8.5
R-1092 Caravelle Conv.	R	4-2.28x3.15	40-5000	51.6	8.00	IL	IH	89.5	49.2	48.0	170.1	61.8	53.2	5.50/15	1653	1-Do	W	HS	3	SA	CT	CS	H	4⅞	8.5
R-1092 Caravelle H.T.	R	4-2.28x3.15	40-5000	51.6	8.00	IL	IH	89.5	49.2	48.0	170.1	61.8	53.2	5.50/15	1728	1-Do	W	HS	3	SA	CT	CS	H	4⅞	8.5
R-1090-A Ondine	R	4-2.28x3.15	32-4250	51.6	8.00	IL	IH	89.5	49.2	48.0	157.5	60.0	56.5	5.50/15	1477	1-Do	W	HS	4	SA	CT	CS	H	5	8.5
R-1091 Ondine Gordini	R	4-2.28x3.15	40-5000	51.6	8.00	IL	IH	89.5	49.2	48.0	157.5	60.0	56.5	5.50/15	1477	1-Do	W	HS	4	SA	CT	CS	H	5	8.5
Simca Aronde 6-CV	Fr	4-2.65x2.92	41-4900	68.5	7.30	IL	IH	96.3	49.4	49.2	164.8	61.5	56.0	5.60/14	1943	1-SD	W	HS	4	Hk	CT	CL	H	5¾	9.5
Aronde 7-CV Rush	Fr	4-2.88x2.92	51-4900	78.7	7.30	IL	IH	96.3	49.4	49.2	164.8	61.5	56.0	5.60/14	1988	1-SD	W	HS	4	Hk	CT	CL	H	5¾	.5
Ariane	Fr	4-2.88x2.92	61-5200	78.7	8.30	IL	IH	106.0	54.0	53.0	178.0	68.1	58.3	6.50/15	2320	1-SD	W	HS	4	Hk	CT	LS	H	5¾	13.2
Aronde 7-CV Super Rush	Fr	4-2.88x2.92	61-5200	78.7	8.30	IL	IH	96.3	49.4	49.2	164.8	61.5	56.0	5.60/14	1988	1-SD	W	HS	4	Hk	CT	CL	H	5¾	9.5
Vedette	Fr	8-2.57x3.34	84-4800	143.4	7.50	V	L	105.9	53.9	52.7	187.0	69.1	57.0	6.50/15	2650	1-DD	W	HS	3	Hk	CT	LS	H	15	13.2
GERMANY																									
Auto Union 1000	Fr	3-2.91x2.99	44-4500	59.9	7.25	IL	N	92.0	50.8	53.0	165.1	66.7	57.7	5.60/15		1-Do	W	HS	4	BG	LS	LS	H	8½	12.0
1000-S	Fr	3-2.91x2.99	50-4500	59.9	7.25	IL	N	92.0	50.8	53.0	165.1	66.7	57.7	5.60/15		1-Do	W	HS	4	BG	LS	LS	H	8½	12.0
1000 Sp.	Fr	3-2.91x2.99	55-4500	59.9	8.00	IL	N	92.0	50.8	53.0	164.0	66.0	52.0	6.00/15		1-DD	W	HS	4	BG	LS	LS	H	8	13.5

For Abbreviations, see page 132

For Directory of Car Manufacturers listed above, see Page 53

FOREIGN PASSENGER CARS—*continued*

MAKE AND MODEL	ENGINE: Location in Chassis	Number of Cylinders Bore and Stroke (In.)	Max. Brake Horsepower at Specified R.P.M.	Piston Displacement (Cu. In.)	Compression Ratio (To —1)	Cylinder Arrangement	Valve Location	CHASSIS: Wheelbase (In.)	TREAD (In.): Front	TREAD (In.): Rear	OVERALL DIMENSIONS (In.): Length Including Bumpers and Bumper Guards	OVERALL DIMENSIONS (In.): Width	OVERALL DIMENSIONS (In.): Height—Road to Roof, No Load	Tires (In.)	Shipping Weight (Lbs.)	Carburetor—No. Used and Type	Cooling Medium	Shifting Method	No. of Forward Speeds	Final Drive Type	Front Suspension Type	Rear Suspension Type	Service Brakes	Cooling System Capacity (Qt.)	Fuel Tank Capacity (Gal.)
GERMANY—*continued*																									
BMW 700	R	2-3.07x2.87	35-5200	42.5	7.50	Op	IH	83.5	50.0	47.3	139.2	58.3	53.0	5.20/12	1410	1-SD	A	HS	4	BG	CS	CS	H	N	8.7
2.6	Fr	6-2.91x2.95	110-4800	157.0	7.00	V	IH	111.6	52.3	77.7	186.0	70.0	60.0	6.40/15	3010	1-DD	W	HS	4	TT	TB	TB	H	9½	18.0
2.6 Luxus	Fr	6-2.91x2.95	115-4800	157.0	7.00	V	IH	111.6	52.3	55.7	186.0	70.0	60.0	6.40/15	3110	1-DD	W	HS	4	TT	TB	TB	H	9½	18.0
3.2	Fr	6-3.22x2.95	140-4800	193.0	7.20	V	IH	111.6	52.3	55.7	186.0	70.0	60.0	6.40/15	3220	1-DD	W	HS	4	TT	TB	TB	H	9½	18.0
3.2 Super	Fr	6-3.22x2.95	162-4800	193.0	7.30	V	IH	111.6	52.3	55.7	186.0	70.0	60.0	6.50/15	3240	2-DD	W	HS	4	TT	TB	TB	H	10½	18.0
700 Sport Coupe	R	2-3.07x2.87	46-5800	42.5	9.00	Op	IH	83.5	50.0	47.3	139.2	58.3	50.0	5.20/12	1390	2-SD	A	HS	4	BG	CS	CS	H	N	8.7
Isetta 300	R	1-2.63x2.87	16-5200	18.0	7.00	S	IH	59.0	47.3	20.5	92.6	54.3	52.7	4.80/10	772	.....	A	HS	4	Ch	CS	LS	H	N	3.4
Borgward Isabella Lim.	R	4-2.95x3.31	60-4700	91.0	7.00	IL	IH	102.4	53.0	53.9	173.3	69.3	59.1	5.90/13	2183	1-SD	W	HS	4	TT	CS	CS	H	7½	12.1
Isabella TS	Fr	4-2.95x3.31	75-5400	91.0	7.00	IL	IH	102.4	53.0	53.9	173.3	69.3	59.1	5.90/13	2359	1-DD	W	HS	4	TT	CS	CS	H	7½	12.1
Isabella Combi	Fr	4-2.95x3.31	55-	91.0	7.00	IL	IH	102.4	53.0	53.9	173.3	69.3	59.4	6.40/13	2425	1-SD	W	HS	4	TT	CS	CS	H	7½	12.1
Isabella Cpe.	Fr	4-2.95x3.31	75-5400	91.0	8.20	IL	IH	102.4	53.0	53.9	173.3	68.1	54.3	5.90/13	2359	1-DD	W	HS	4	TT	CS	CS	H	9	12.1
Big Borgward	Fr	6-2.95x3.31	100-	136.6	8.70	IL	IH	104.4	53.6	53.9	185.6	68.4	55.9	6.40/13	2855	1-DD	W	HS	4	TT	CS	CS	H	9	12.1
DKW Junior	Fr	3-2.68x2.68	34-4300	45.0	8.00	IL	N	85.7	46.5	47.3	156.9	62.0	55.0	5.20/12	.....	1-De	W	HS	4	BG	TB	TB	HM	7½	9.3
FMR KR-200, KR-201	R	1-2.54x2.26	10-5000	11.7	6.60	S	N	80.0	43.0	N	112.0	46.0	47.0	4.40/8	506	1-Sd	A	HS	4	.....	RT	RT	M	N	3.6
TG-500	R	2-2.62x2.73	20-5000	30.2	6.50	IL	N	74.5	44.0	41.0	120.0	51.0	50.0	4.40/10	770	1-De	A	HS	4	.....	RT	CS	H	N	7.9
Ford Taunus 12M	Fr	4-2.50x3.64	43-4250	71.5	7.40	IL	L	98.0	48.0	48.0	160.0	61.8	60.0	5.60/13	1850	1-SD	W	HS	3	Hk	CT	LS	H	7½	9.0
Taunus 12M Super	Fr	4-3.23x2.79	60-4500	91.4	6.80	IL	IH	98.0	48.0	48.0	160.0	61.8	60.0	5.60/13	1900	1-SD	W	HS	3	Hk	CT	LS	H	7½	9.0
Taunus 17M/P3-P3T	Fr	4-3.23x2.79	60-4500	91.4	6.80	IL	IH	103.5	51.0	51.0	175.2	65.8	57.1	5.90/13	.....	1-SD	W	HS	3	Hk	CS	LS	H	7½	11.9
Taunus 17MS/P3-P3TS	Fr	4-3.30x3.00	67-4500	103.6	7.00	IL	IH	103.5	51.0	51.0	175.2	65.8	57.1	5.90/13	.....	1-SD	W	HS	3	Hk	CS	LS	H	7½	11.9
Goggomobil Regent T300	R	2-	15-5000	17.8	.....	IL	.....	70.8	.....	.....	114.2	50.4	51.5	4.40/10	920	.....	A	.....	4	.....	CS	CS	H	N	6.6
Regent T400	R	2-2.64x2.21	20-5000	23.9	6.00	IL	N	70.8	.....	.....	114.2	50.4	51.5	4.40/10	920	1-SS	A	.....	4	.....	CS	CS	H	N	6.6
Mayfair TS300	R	2-	15-5000	17.8	.....	IL	.....	70.8	.....	.....	119.5	53.9	48.6	4.80/10	1000	.....	A	Pr	4	.....	CS	CS	H	N	6.6
Mayfair TS400	R	2-2.64x2.21	20-5000	23.9	6.00	IL	N	70.8	42.0	42.0	119.5	53.9	48.6	4.80/10	1000	1-SS	A	Pr	4	.....	CS	CS	H	N	6.6
Royal T700	Fr	2-3.04x2.81	30-4900	41.6	7.20	Op	IH	78.7	47.2	45.6	134.8	57.9	54.3	4.80/12	1330	2-DD	A	HS	4	.....	CS	LS	H	N	10.5
Goliath 1100 Sed., Deluxe, Cpe.	Fr	4-2.91x2.52	40-4250	66.5	7.30	Op	.....	89.4	50.3	51.6	161.0	64.2	57.1	5.60/13	1896	1-He	W	HA	4	BG	LS	LS	H	8½	12.0
1100 Deluxe, Coupe	Fr	4-2.91x2.52	55-5000	66.5	7.90	Op	.....	89.4	50.3	51.6	161.0	64.2	53.5	5.60/13	2094	2-He	W	HA	4	BG	LS	LS	H	8½	12.0
Lloyd Alexander	Fr	2-3.03x2.52	24-4500	36.4	6.60	IL	OC	78.8	41.4	43.4	132.0	55.5	55.1	4.25/15	1240	1-SD	A	HS	4	.....	LS	CS	H	N	6.6
Alexander TS	Fr	2-3.03x2.52	29-5000	36.4	7.20	IL	OC	78.8	41.4	43.4	132.0	55.5	55.1	4.25/15	1240	1-SD	A	HS	4	.....	LS	CS	H	N	6.6
Arabella	Fr	4-2.72x2.36	42-4800	54.8	7.50	Op	IH	86.6	47.3	47.3	149.6	59.4	54.9	5.20/13	1530	1-SD	W	HS	4	.....	CS	CS	H	6½	9.3
Arabella 34	Fr	4-2.72x2.36	34-4700	54.8	7.50	Op	IH	86.6	47.3	47.3	149.6	59.4	54.9	5.20/13	.....	1-St	W	HS	4	.....	CS	CS	H	6½	9.3
Arabella Deluxe	Fr	4-2.72x2.36	45-5300	54.8	9.00	Op	IH	86.6	47.3	47.3	149.6	59.4	54.9	5.20/13	.....	1-St	W	HS	4	.....	CS	CS	H	6½	9.3
Mercedes-Benz 180	Fr	4-3.32x3.26	78-4500	115.8	7.00	IL	OC	104.3	56.3	58.0	177.2	68.5	61.4	6.40/13	2390	1-SD	W	HS	4	Hy	CS	CS	H	8	12.3
180D	Fr	4-2.92x3.90	46-3500	107.8	19.00	IL	IH	104.3	56.3	58.0	177.2	68.5	61.4	6.40/13	2510	Inj	W	HS	4	Hy	CS	CS	H	7½	12.3
190	Fr	4-3.32x3.26	90-5000	115.8	8.50	IL	OC	104.3	56.3	58.0	177.2	68.5	61.4	6.40/13	2450	1-DD	W	HS	4	Hy	CS	CS	H	8¼	12.3
190D	Fr	4-3.32x3.26	55-4000	115.8	21.00	IL	OC	104.3	56.3	58.0	177.2	68.5	61.4	6.40/13	2510	Inj	W	HS	4	Hy	CS	CS	H	7½	12.3
190SL	Fr	4-3.32x3.26	120-5800	115.8	8.80	IL	OC	94.5	56.3	58.0	169.0	68.5	52.0	6.40/13	2415	2-DS	W	HS	4	Hy	CS	CS	HV	8¼	14.3
220	Fr	6-3.12x2.84	105-5000	134.0	8.70	IL	OC	108.2	57.9	58.5	192.2	70.7	59.5	6.40/13	2710	2-DD	W	HS	4	Hy	CS	CS	H	10	11.4
220S Saloon	Fr	6-3.12x2.84	124-5200	134.0	8.70	IL	OC	108.2	57.9	58.5	192.2	70.7	59.5	6.70/13	2730	2-DD	W	HS	4	Hy	CS	CS	HV	10	14.3
220SE Coupe	Fr	6-3.12x2.84	134-5000	134.0	8.70	IL	OC	106.3	56.6	58.2	185.0	70.5	60.2	6.70/13	2845	Inj	W	HS	4	Hy	CS	CS	HV	10	13.6
220SE	Fr	6-3.12x2.84	134-5000	134-0	8.70	IL	OC	108.2	57.9	58.5	192.2	70.7	59.5	6.70/13	2800	Inj	W	HS	4	Hy	CS	CS	HV	10	14.3
300 Automatic	Fr	6-3.32x3.43	180-5500	182.8	8.55	IL	OC	124.0	58.3	60.0	204.3	73.2	63.7	7.60/15	4060	Inj	W	Au	4	Hy	CS	CT	HV	18½	17.1
300SL Roadster	Fr	6-3.32x3.43	240-6100	182.8	8.55	IL	OC	94.5	55.0	57.0	180.0	70.5	51.0	6.50/15	2730	Inj	W	HS	4	Hy	CS	CS	HV	17½	22.0
NSU Prinz 30	R	2-2.92x2.57	24-4800	35.6	6.80	IL	OC	78.7	47.2	47.2	123.8	55.9	53.2	4.40/12	1107	1-SD	A	HS	4	Hk	CS	CS	H	N	6.6
Sport Prinz	R	2-2.92x2.57	36-5500	35.6	7.60	IL	OC	78.7	47.2	47.2	141.7	59.2	49.2	4.40/12	1224	1-SD	A	HS	4	Hk	CS	CS	H	N	6.6
Opel Olympia-Rekord	Fr	4-3.35x2.91	64-4200	102.5	7.80	IL	IH	100.0	49.8	50.4	177.7	64.3	58.5	5.90/13	1922	1-SD	W	HS	3	Hk	CS	LS	H	8	10.6
Kapitan, Kapitan "L"	Fr	6-3.35x3.01	99-4300	159.0	7.80	IL	IH	110.2	54.3	54.1	189.9	71.3	59.5	7.00/14	2773	1-SD	W	HS	3	Hk	CS	LS	H	10½	14.5
1200	Fr	4-2.83x2.91	45-4700	73.5	7.50	IL	IH	100.0	49.6	50.0	174.0	63.6	59.7	5.60/13	.....	1-SD	W	HS	3	Hk	CS	LS	H	8½	10.6
Porsche 356B/1600	R	4-3.25x2.91	60-4500	96.5	7.50	Op	OC	82.7	41.4	50.1	157.7	65.6	51.7	5.60/15	1900	2-DD	A	HS	4	TT	TB	TB	H	N	13.7
356B/1600S	R	4-3.25x2.91	75-5000	96.5	8.50	Op	OC	82.7	51.4	50.1	157.7	65.6	51.7	5.60/15	1900	2-DD	A	HS	4	TT	TB	TB	H	N	13.7
356B/1600S-90	R	4-3.25x2.91	90-5500	96.5	9.00	Op	OC	82.7	51.4	50.1	157.7	65.6	51.7	5.90/15	1900	2-DD	A	HS	4	TT	TB	TB	H	N	13.7
356B/1600 GS	R	4-3.42x2.40	115-6500	96.8	9.80	Op	OC	82.7	51.4	50.1	156.0	65.8	52.0	5.90/15	1860	2-DD	A	HS	4	TT	TB	TB	H	N	21.1
Volkswagen 11	R	4-3.03x2.52	40-3900	72.7	7.00	Op	IH	94.5	51.4	50.7	160.6	60.6	59.1	5.60/15	1565	1-SD	A	HS	4	SB	TB	TB	H	N	10.6
14	R	4-3.03x2.52	40-3900	72.7	7.00	Op	IH	94.5	51.4	50.7	163.0	64.3	52.4	5.60/15	1740	1-SD	A	HS	4	SB	TB	TB	H	N	10.6
22	R	4-3.03x2.52	40-3900	72.7	7.00	Op	IH	94.5	53.9	53.5	168.9	68.9	76.4	6.40/15	2410	1-SD	A	HS	4	SB	TB	TB	H	N	10.6
HOLLAND																									
DAF 600	Fr	2-3.00x2.50	22-4000	36.0	7.10	Op	IH	81.0	46.5	46.5	142.0	57.0	56.0	5.20/12	1390	1-SD	A	Au	.....	.....	LS	CS	H	N	7.5
IRELAND																									
Heinkel T154	R	1-2.50x2.40	10-5500	11.8	6.80	S	IH	68.8	47.8	8.6	100.0	53.8	51.8	4.40/10	628	1-Sd	A	HS	4	Ch	CS	CS	HM	N	3.3
ITALY																									
Bianchina 110D-B	R	2-2.65x2.76	22-4400	30.5	7.10	IL	IH	72.4	44.1	44.7	117.5	52.8	52.0	5.00/12	.....	1-De	A	HS	4	.....	LS	CS	H	N	5.5
110B Sp.	R	2-2.65x2.76	25-4600	30.5	8.60	IL	IH	72.4	44.1	44.7	117.5	52.8	52.0	5.00/12	.....	1-De	A	HS	4	.....	LS	CS	H	N	5.5
110D-B Cabr.	R	4-2.76x2.76	25-4600	30.5	8.60	IL	IH	72.4	44.1	44.7	119.6	52.8	49.5	4.80/12	.....	1-SD	A	HS	4	.....	LS	CS	H	N	5.5
120B	R	4-	22-4400	30.5	7.10	IL	IH	76.3	44.1	44.7	126.7	52.8	52.3	4.80/12	.....	1-SD	A	HS	4	.....	LS	CS	H	N	5.5
Ferrari 250 Granturismo Coupe	Fr	12-2.84x2.29	240-7000	180.0	8.80	V	OC	101.5	52.7	52.6	183.3	66.7	52.3	6.50/15	2830	3-DD	W	HS	4	TT	CT	LS	HM	7½	19.8
250 Granturismo Cabriolet	Fr	12-2.84x2.29	240-7000	180.0	8.80	V	OC	101.5	52.7	52.6	183.3	67.4	52.3	6.50/15	2700	3-DD	W	HS	4	TT	CT	LS	HM	7½	19.8
250 Granturismo Berlinetta	Fr	12-2.84x2.29	280-7000	180.0	9.20	V	OC	93.6	52.7	52.6	163.9	67.0	49.5	6.00/16	2100	3-DD	W	HS	4	TT	CT	LS	HM	7½	19.8

For Abbreviations, see page 132

For Directory of Car Manufacturers listed above, see Page 53

FOREIGN PASSENGER CARS—*concluded*

MAKE AND MODEL	ENGINE: Location in Chassis	Number of Cylinders Bore and Stroke (In.)	Max. Brake Horsepower at Specified R.P.M.	Piston Displacement (Cu. In.)	Compression Ratio To —1	Cylinder Arrangement	Valve Location	CHASSIS: Wheelbase (In.)	TREAD (In.): Front	TREAD (In.): Rear	OVERALL DIMENSIONS (In.): Length Including Bumpers and Bumper Guards	OVERALL DIMENSIONS (In.): Width	OVERALL DIMENSIONS (In.): Height—Road to Roof, No Load	Tires (In.)	Shipping Weight (Lbs.)	Carburetor—No. Used and Type	Cooling Medium	Shifting Method	No. of Forward Speeds	Final Drive Type	Front Suspension Type	Rear Suspension Type	Service Brakes	Cooling System Capacity (Qt.)	Fuel Tank Capacity (Gal.)
ITALY—*continued*																									
Ferrari—Cont'd																									
250 Granturismo Spyder California	Fr	12-2.84x2.29	280-7000	180.0	9.20	V	OC	93.6	52.7	52.6	163.9	67.0	49.5	6.50/15	2320	3-DD	W	HS	4	TT	CT	LS	HM	7½	19.8
400 Superamerica Cabriolet	Fr	12-3.00x2.70	400-7000	242.0	8.60	V	IH	94.5	53.0	52.6	.....	.....	.....	6.50/15	2760	3-....	W	HS	4	.....	CS	LS	.....	.....	26.4
Fiat 500D	R	2-2.65x2.76	22-4400	30.5	7.00	IL	IH	72.4	44.1	44.7	121.0	52.1	52.2	4.70/12	1069	1-SD	A	HS	4	SB	LS	CS	HM	N	5.5
500 Station Wagen	R	2-2.65x2.76	22-4600	30.5	8.60	IL	IH	76.4	44.1	44.5	125.4	52.1	53.3	4.70/12	1091	1-SS	A	HS	4	SB	LS	CS	HM	N	5.5
600D	R	4-2.44x2.50	32-4800	46.8	7.50	IL	IH	78.8	45.3	45.7	130.5	54.3	55.3	5.20/12	1279	1-SD	W	HS	4	SB	LS	CS	HM	4¾	7.1
600D Multipla	R	4-2.44x2.50	32-4800	46.8	7.50	IL	IH	78.8	48.4	45.6	144.2	57.1	62.2	5.20/12	1587	1-SD	W	HS	4	SB	CS	CS	HM	7	7.6
1100 Station Wagon	Fr	4-2.68x2.85	55-5200	66.5	7.00	IL	IH	92.1	48.6	47.9	149.1	57.4	58.9	5.60/14	1929	1-DD	W	HS	4	Hy	CS	LS	HM	4¾	10.5
1100 Export	Fr	4-2.68x2.95	55-5200	66.5	7.00	IL	IH	92.1	48.6	47.9	154.0	57.4	58.7	5.20/14	1885	1-DD	W	HS	4	Hy	CS	LS	HM	4¾	10.0
1100 Special	Fr	4-2.68x2.95	55-5200	66.5	7.85	IL	IH	92.1	48.6	47.9	156.0	57.4	57.8	5.20/14	1940	1-DD	W	HS	4	Hy	CS	LS	HM	4¾	10.0
1200 Granfuce	Fr	4-2.83x2.95	63-5300	74.5	8.25	IL	IH	92.1	48.6	47.9	156.0	57.4	57.8	5.20/14	1995	1-DD	W	HS	4	Hy	CS	LS	HM	4¾	10.0
1200 Cabriolet	Fr	4-2.83x2.95	63-5300	74.5	8.25	IL	IH	92.1	48.6	47.9	158.7	59.8	51.2	5.20/14	1962	1-DD	W	HS	4	Hy	CS	LS	HM	4¾	10.0
1800 Station Wagon	Fr	6-2.83x2.89	82-5000	109.5	8.80	IL	IH	104.3	52.8	51.5	175.8	63.8	58.5	6.40/14	2811	1-DD	W	HS	4	Hy	TB	CS	HM	2¼	15.9
1800 Sedan	Fr	6-2.83x2.89	85-5000	109.5	8.80	IL	IH	104.3	52.8	51.5	175.8	63.8	57.9	5.90/14	2601	1-DD	W	HS	4	Hy	TB	CS	HM	2¼	15.9
1500 Cabriolet	Fr	4-3.07x3.07	90-6000	90.9	8.68	IL	TO	92.1	48.7	47.8	158.7	59.8	51.2	6.00/15	2116	1-DD	W	HS	4	Hy	CS	LS	HM	6¼	11.9
1800 Station Wagon	Fr	6-3.03x2.89	90-5000	125.3	8.80	IL	IH	104.3	52.8	51.5	175.8	63.8	58.5	6.40/14	2811	1-DD	W	HS	4	Hy	TB	CS	HM	2¼	15.9
1800 Sedan	Fr	6-3.03x2.89	95-5000	125.3	8.80	IL	IH	104.3	52.8	51.5	175.8	63.8	57.9	5.90/14	2601	1-DD	W	HS	4	Hy	TB	CS	HM	2¼	15.9
2100 Special Sedan	Fr	6-3.03x2.89	95-5000	125.3	8.80	IL	IH	104.3	52.8	51.5	182.1	64.1	58.7	6.40/14	2756	1-DD	W	HS	4	Hy	TB	CS	HM	2¼	15.9
Lancia Appia Saloon	Fr	4-2.67x2.97	48-4900	66.5	7.80	V	IH	99.0	46.5	46.5	158.3	58.3	57.1	6.00/14	.....	1-Do	W	HS	4	.....	CS	LS	M	6	10.0
Appia Coupe	Fr	4-2.67x2.97	54-5200	66.5	8.00	V	IH	99.0	46.4	46.5	161.6	58.7	51.6	6.00/15	.....	1-Do	W	HS	4	.....	CS	LS	M	6	10.0
Appia Convertible	Fr	4-2.67x2.97	54-5200	66.5	8.00	V	IH	99.0	46.4	46.5	163.4	59.8	51.2	6.00/15	.....	1-Do	W	HS	4	.....	CS	LS	M	6	10.0
Appia G. T. E.	Fr	4-2.67x2.97	54-5200	66.5	8.00	V	IH	99.0	46.4	46.5	168.0	55.9	48.8	6.00/15	.....	1-Do	W	HS	4	.....	CS	LS	M	6	10.0
Flaminia Saloon	Fr	6-3.15x3.21	100-4800	150.0	7.80	V	OC	113.0	54.0	54.0	191.0	69.0	59.0	6.40/15	.....	1-....	W	HS	4	.....	CS	LS	H	10	15.3
Flaminia Sport	Fr	6-3.15x3.21	119-5200	150.0	9.00	V	OC	99.0	54.0	54.0	177.0	67.0	51.0	6.40/15	.....	1-....	W	HS	4	.....	CS	LS	H	10	15.3
Flaminia GT	Fr	6-3.15x3.21	119-5200	150.0	9.00	V	OC	99.0	54.0	54.0	177.0	65.0	51.0	6.40/15	.....	1-....	W	HS	4	.....	CS	LS	H	10	15.3
Flaminia Coupe	Fr	6-3.15x3.21	119-5200	150.0	9.00	V	OC	108.0	54.0	54.0	187.0	68.5	56.0	6.40/15	.....	1-....	W	HS	4	.....	CS	LS	H	10	15.3
Flavia	.....	4-3.28x2.80	78-5200	232.5	8.30	Op	.....	104.3	51.2	50.4	180.2	63.2	59.1	6.40/15	2689	.....	W	HS	4	Hy	LS	LS	HV	6¾	12.8
Moretti Berlina	Fr	4-2.32x2.81	38-5000	49.5	8.00	IL	IH	83.8	.....	.....	146.0	57.0	55.0	5.20/12	1680	1-DD	W	HS	4	.....	.....	.....	H	.....	9.0
Spyder	Fr	4-2.32x2.81	38-5000	49.5	8.00	IL	IH	83.8	.....	.....	144.0	54.6	50.7	5.20/12	1555	1-DD	W	HS	4	.....	.....	.....	H	.....	9.0
Coupe	Fr	4-2.32x2.81	38-5000	49.5	8.00	IL	IH	83.8	.....	.....	144.0	54.6	51.5	5.20/12	1590	1-DD	W	HS	4	.....	.....	.....	H	.....	9.0
4 USI	Fr	4-2.32x2.81	38-5000	49.5	8.00	IL	IH	83.8	.....	.....	146.0	57.0	55.0	5.20/12	1720	1-DD	W	HS	4	.....	.....	.....	H	.....	9.0
Giardiniera	Fr	2-2.58x2.73	21-4400	29.2	7.00	.....	.....	71.7	.....	.....	127.0	51.5	52.6	4.80/12	1192	.....	.....	HS	4	.....	.....	.....	.....	.....	.....
JAPAN																									
Datsun PL311-U	Fr	4-2.88x2.80	60-5000	72.5	8.20	IL	IH	89.8	47.6	47.0	153.9	58.9	57.5	5.60/13	.....	1-DD	W	HS	3	Hk	CS	LS	H	5½	8.2
SPL213	Fr	4-2.88x2.80	60-5000	72.5	8.20	IL	IH	87.4	46.0	46.5	158.5	58.1	54.3	5.20/14	.....	1-DD	W	HS	4	Hk	TB	LS	H	6½	8.6
Toyota																									
Toyopet Corona PT20	Fr	4-2.75x2.56	48-5000	60.8	7.50	IL	IH	94.5	48.4	48.4	157.1	58.7	56.7	5.60/13	2120	1-DD	W	HS	3	Hk	TB	LS	H	7	10.5
Toyopet Crown RS20	Fr	4-3.03x3.07	63-4500	88.5	7.50	IL	IH	99.6	52.6	54.4	173.6	66.8	60.3	7.00/13	2580	1-DD	W	HS	3	Hk	CS	LS	H	8¾	12.4
Toyopet Tiara RT20L	Fr	4-3.03x3.07	65-4500	88.5	8.40	IL	IH	94.5	48.4	48.4	157.1	58.7	56.7	5.60/13	2170	1-DD	W	HS	3	Hk	TB	LS	H	8¾	10.5
Toyopet Crown Custom RS32L	Fr	4-3.46x3.07	95-5000	115.8	8.30	IL	IH	99.6	52.6	54.4	173.6	66.8	60.1	6.40/13	2690	1-DD	W	HS	3	Hk	CS	LS	H	8¾	12.4
RUSSIA																									
Moskvitch 407	Fr	4-2.99x2.95	45-4500	83.0	7.00	.....	IH	93.0	48.0	48.0	159.5	60.5	61.5	5.60/15	1990	1-Do	W	HS	3	.....	CS	LS	H	.....	7.8
Volga M-21K	Fr	4-3.62x3.62	80-4000	149.0	7.50	.....	IH	106.0	55.5	56.0	190.0	71.0	64.0	6.70/15	3000	1-Do	W	HS	3	.....	CS	LS	.....	.....	13.0
SPAIN																									
S. E. A. T. 600	R	4-2.36x2.20	22-4600	38.7	7.50	IL	IH	78.7	45.0	45.4	127.0	54.5	55.5	5.20/12	.....	1-SD	W	HS	4	TT	LS	CS	H	4½	7.1
1400C	Fr	4-3.2ix2.98	58-4600	85.1	7.50	IL	IH	104.3	52.4	51.4	125.8	62.8	56.4	6.40/14	.....	1-DD	W	HS	4	TT	CS	CS	H	9¾	15.9
SWEDEN																									
SAAB 95	Fr	3-2.76x2.87	42-5000	51.3	7.30	IL	N	98.0	48.0	48.0	162.0	62.0	58.0	5.60/15	1908	1-Do	W	HS	4	.....	CS	CS	H	8	11.4
96	Fr	3-2.70x2.87	42-5000	51.0	7.30	IL	N	98.0	48.0	48.0	158.0	62.0	58.0	5.00 15	1817	1-SD	W	HS	3	.....	CS	CS	H	8	10.6
96GT750	Fr	3-2.59x2.87	48-5000	46.0	9.80	IL	N	98.0	48.0	48.0	158.0	62.0	58.0	5.60 15	1900	1-SD	W	HS	4	.....	CS	CS	.....	8	10.6
SWITZERLAND																									
Enzmann 506	R	4-3.00x2.50	42-3400	72.5	6.60	Op	.....	.....	.....	.....	164.0	62.5	50.0	.....	.....	.....	A	HS	.....	.....	TB	TB	H	N	16.5
506 Super	R	4-3.00x2.71	45-4600	79.0	7.80	Op	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

ABBREVIATIONS

1—Helical gears to differential mounted on side of transmission casing. Short drive shafts to each front wheel.
A—Air.
Au—Automatic.
BG—Bevel gear.
Ch—Chain.
CL—Coil and leaf spring.
CS—Coil springs.
CT—Coil springs and torsion bars.
DD—Dual throat downdraft.
Do—Downdraft.
DS—Dual throat, sidedraft.
F—"F" head, valves in head and side.
Fr—Front.
H—Hydraulic.
HA—Hand shift or automatic.
Hk—Hotchkiss.
HM—Hydraulic and mechanical.
Ho—Horizontal.
HS—Hand shift.
HV—Hydraulic, vacuum assisted.
Hy—Hypoid.
IH—In head.
IL—In line.
Inj—Injectors.
L—"L" head, valves at side.
LS—Leaf springs.
M—Mechanical.
N—None.
OC—Overhead camshaft.
Op—Opposed.
Pr—Preselective.
R—Rear.
RS—Rubber cone spring.
RT—Rubber torsion springs.
S—Single cylinder.
SA—Split axle.
SB—Spiral bevel.
Sd—Sidedraft.
SD—Single throat downdraft.
Sm—Semi-downdraft.
SS—Single throat sidedraft.
SSh—Single throat semi-horizontal.
SSm—Single throat semi-downdraft.
St—Single throat.
TB—Torsion bars.
TO—Twin overhead camshafts.
TT—Torque tube.
V—"V" type engine.
W—Water.

For Directory of Car Manufacturers listed above, see Page 53

1961....TRUCKS

A complete table of Heavy-Duty and Off-Highway Trucks will be found in the Construction and Farm Equipment Section of this issue. See Pages 214-216.

KEY TO DEFINITIONS

MAKE AND MODEL

Only Domestic Truck Models are listed.

OPTIONAL UNITS

For the express purpose of best fitting the truck to the individual job most of the models listed can be provided with optional engines, transmissions, axles, etc., and these models when so equipped are considered standard stock models.

RECOMMENDED GROSS VEHICLE WEIGHT FOR NORMAL SERVICE

The Gross Weights published herewith are those supplied by manufacturers as their Recommended Gross Vehicle Weights for Normal Operating Conditions, and are based upon the Maximum Authorized Tire Size listed. In actual practice the manufacturer may either increase or decrease the gross vehicle weight rating when either favorable or unfavorable operating conditions are involved. Since the proper performance of a motor truck depends upon many factors, including grades, road conditions, etc., the gross weights that a manufacturer is prepared to recommend will vary with particular conditions, and the manufacturer's own standard of safety factors. Specific recommendations, therefore, should be obtained from the manufacturer's representative.

CHASSIS WEIGHT

The chassis weight listed includes the weight of the minimum standard wheelbase chassis, with cowl, with standard tires, with standard equipment, with crankcase and cooling system full, and 5 gallons of fuel in the tank. It does not include the weight of the Cab. This applies to C.O.E. as well as conventional chassis types. Exceptions are noted.

STANDARD TIRE SIZE

The standard tire size listed is that which is included in the Chassis List Price.

MAXIMUM AUTHORIZED TIRE SIZE

The tire size listed in this column is the maximum size recommended by the manufacturer of the chassis for the Gross Vehicle Weight for Normal Operating Conditions. It is furnished at extra cost, if it differs from the standard size. Dual rears are understood; exceptions noted.

MINIMUM STANDARD WHEELBASE

The minimum standard wheelbase is the so-called standard wheelbase on which the Chassis List Price is based.

MAXIMUM STANDARD WHEELBASE

The maximum standard wheelbase is the extreme end of the standard range of wheelbases offered by the chassis maker.

MAXIMUM BRAKE HP.

Maximum Brake Horsepower at Given R.P.M. is actual dynamometer reading without accessories.

GEAR RATIO RANGE

Gear Ratio Range in High—Ratios within the range given are available at no extra cost. Exceptions are noted.

TRACTORS

Unless given the designation (N)—meaning not available as a tractor—all standard models may be assumed to be available as tractors. Exclusively Tractor models are designated (T).

KEY TO ABBREVIATIONS

MAKES—ALL

All—Allison Div., General Motors Corp.
B—Bendix.
BL—Brown-Lipe.
Bu or Bud—Buda.
BW—Bendix-Westinghouse.
C—Chevrolet.
Cl or Cla—Clark.
Con—Continental.
Cu or Cum—Cummins-Diesel.
Deu—Deutz Air Cooled Diesel engine.
Eat—Eaton.
F—Ford.
Fu—Fuller.
G-H—Goodyear-Hawley type.
GM—General Motors Corp., Detroit Diesel Engine Div.
H—Hotchkiss.
Her—Hercules.
HS—Hall-Scott.
Int.—International Harvester.
L—Lockheed.
LeR—LeRoi.
LH—Lockheed front, Wagner "hi-Tork" rear.
LT—Lockheed type front Timken rear.
LW—Lockheed front, Wisconsin rear.
M—Midland.
N.P.—New Process.
O or Ow—Own.
Op or Opt.—Optional.
Shu—Shuler.
Spi—Spicer.
T or Tim—Timken-Detroit Axle Co.
Tw—Timken-Detroit—Westinghouse.
TW—Timken-Detroit—Wisconsin.
Var—Variable.
WG—Warner Gear.
Wau—Waukesha.
W or Wis—Wisconsin.
W-B—Wagner or Bendix.
WE—Wagner Electric.
Wg—Wagner "hi-Tork."
Ws—Westinghouse.
WW—Westinghouse or Wagner.

REAR AXLE

Final Drive and Type

B—Bevel.
CD—Chain Drive.
F—Full-floating.
H or Hy—Hypoid.
d—Dual range axle.
2—Double Reduction.
S—Spiral bevel.
W—Worm.
¾—Three Quarters Floating.
½—Semi-Floating.
T—Torque Tube.
FT—Full-floating, tandem drive.
P—Planetary.

GEAR RATIOS

(**)—Only one ratio.

Drive and Torque

H—Hotchkiss (springs)
R—Radius Rods.
I—Parallel Torque Rods.
T—Torque Arm.

GOVERNOR STANDARD

Y—Yes.
N—No.

KEY TO REFERENCES

c.f.—Cab Forward design.
c.o.e.—Cab-Over-Engine design.
f.c.—Forward control chassis.
l.c.f.—Low cab forward design.
(D)—Diesel-engine equipped.
(T)—Designed for tractor use only.
(C)—Ford or Chevrolet Models.
(R)—Remanufactured Fords.
▲—Denotes "Includes Cab" when used with weights or prices.

CHEVROLET

†—Powerglide available.
△—Heavy duty three speed available.
□—Positraction axle available.
■—348 Workmaster Special available.
•—Four speed close ratio available.
▲▲—283 Trademaster available.
‡—Heavy duty four speed available.
••—Five speed New Process available.
□□—Two speed rear axle available.
△△—283 Super Taskmaster available.
¢—Clark 267V available.
††—Spicer three speed auxilliary available.
♦—Hydramatic available.

DIVCO

•—Front only; rear, 7.50/16S
†—Front only; rear, 7.50/20S.
▲—Front only; rear, 8.25/16S.
■—Front only; rear, 7.50/20D.

DODGE

1—170 cu. in. 6-cyl. engine available.
2—251 cu. in. 6-cyl. full premium engine available.
3—361 cu. in. V-8 available (194 hp).
4—361 cu. in. V-8—204 hp available.
5—413 cu. in. V-8—217 hp available.
6—413 cu. in. V-8—228 hp available.
7—Cummins NH-195, NHE-180, NHE-195 available.
8—Cummins NHE-180 available.
9—Automatic and 4-speed available.
10—Heavy duty 3-speed and automatic available.
11—Heavy duty 4-speed and 5-speed available.
12—Four-speed available.
13—Heavy duty 5-speed and short fourth available.
14—Heavy duty 4-speed, 5-speed and short fourth available.
15—Five-speed and short fourth available.

DODGE, cont'd.

16—Short fourth, Clark 301-V and 308-V, and Fuller R-46 available.
17—Spicer 6352-B and Fuller R-46 available.
18—Clark 308-V, Spicer 6352-B and 6852-G, and Fuller R-46 available.
19—Spicer 6453-A, 8125 and Fuller R-96 available.
20—Clark 301-V and Fuller R-46 available.
21—Spicer 6352-B and Fuller R-46 available.
22—Fuller R-96 and Spicer 8125 available.
*—Other options available.

FABCO

*—With 2-speed transfer case.
**—With 3-speed auxiliary and 2-speed transfer case.

FORD

*—Other options available.

FWD

*—Models available with tilt cabs.

KENWORTH

††—Timken TK-570 PA trailing axle.
♦—Both C.O.E. and cab beside engine optional.
▲▲—And 8031.

MARMON-HERRINGTON

■—534 SD-V8-EDN engine available.

OSHKOSH

†—14.00/20 front.

PETERBILT

*—No standard wheelbases. Shorter wheelbases than figures shown are often possible and vary with transmission, rear axles and fuel tanks.
1—Other options available.
2—Model 8041-8031G; also other options.
3—Available with 6x6 drive.
‡—Available in full aluminum, light steel with aluminum, and all light weight steel.
4—SFDD-4640.
5—SFDD-4740.

REO

♦—Model OA-145 and OA-142 LPG engines can be furnished.
♦—Two speed axle available.

REO, Cont'd.

‡—Model OA-100 LPG or OA-130 engine can be furnished.
■—OH-160 LPG or OH-185 engine can be furnished
▲—Includes cab, fuel, oil, water.
▼—Model OV-235 engine can be furnished.
†—OH-170, OA-142 LPG or OH-160 LPG or OH-185 engine can be furnished.
△—OA-145 or OA-142 LPG, OH-160 LPG or OH-185 engine can be furnished.
•—Rear only; front, 11.00/20.
1—Cummins NHE-180, NHE-195, NH-220 and NH-250 engines can be furnished.
2—Cummins NHE-180, NHE-195, HRFB, NH-220, NA-250, and NTO engines can be furnished.
3—Cummins NHE-180, NHE-195, HRFB, NH-220, NH-250, NTO, NHS, NHRS, NRT and NRTO engines can be furnished.

WILLYS

*—Overdrive optional.

1961 TRUCK SPECIFICATIONS

MAKE AND MODEL	WHEELBASE Minimum Standard	WHEELBASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	TRANSMISSION: Make and Model	Forward Speeds	REAR AXLE: Make and Model	Gear and Type	Drive and Torque	Gear Ratio Range in High
Chevrolet 1R-1244	95		4600	2820	7.00/14S	7.00/14S	O-Turbo Air	6-3 1/16x2 1/2††	145	8.0	128	80-4400	Own†•	3	Own	H		** -3.89
1R-1205	95		4600	2830	7.00/14S	7.00/14S	O-Turbo Air	6-3 1/16x2 1/2††	145	8.0	128	80-4400	Own†•	3	Own	H		** -3.89
1R-1206	95		4600	2880	7.00/14S	7.00/14S	O-Turbo Air	6-3 1/16x2 1/2††	145	8.0	128	80-4400	Own†•	3	Own	H		** -3.89
1R-1254	95		4600	3080	7.00/14S	7.00/14S	O-Turbo Air	6-3 1/16x2 1/2††	145	8.0	128	80-4400	Own†•	3	Own	H		** -3.89
1C-143	115		5200	3170	6.70/15S	7.17.5S	O-Th. Mas.▲▲	6-3 7/8x3 1/2††	236	8.3	217	135-4000	Own†△‡	3	Own□	HF		3.38-3.90
1C-153	127		5200	3230	6.70/15S	7.17.5S	O-Th. Mas.▲▲	6-3 7/8x3 1/2††	236	8.3	217	135-4000	Own†△‡	3	Own□	HF		3.38-3.90
(c.f.) 1P-132	102		5400	2390	6.70/15S	7/17.5S	O-Th. Mas.	6-3 7/8x3 1/2††	236	8.3	217	135-4000	Own△††	3	Own	HS		3.38-3.90
(c.f.) 1P-232	104		7000	2740	7/17.5S	8/17.5S	O-Th. Mas. Sp.	6-3 7/8x3 1/2††	236	8.3	217	135-4000	Own△‡•	3	Own	HF	H	** -5.14
(c.f.) 1P-252	125		7000	2810	7/17.5S	8/17.5S	O-Th. Mas. Sp.	6-3 7/8x3 1/2††	236	8.3	217	135-4000	Own△‡•	3	Own	HF	H	** -5.14
(c.f.) 1P-262	137		7000	2840	7/17.5S	8/17.5S	O-Th. Mas. Sp.	6-3 7/8x3 1/2††	236	8.3	217	135-4000	Own△‡•	3	Own	HF	H	** -5.14
(c.f.) 1P-332	104		10000	2920	8/19.5S	8/19.5	O-Th. Mas. Sp.	6-3 7/8x3 1/2††	236	8.3	217	135-4000	Own△•	4	Own	HF	H	** -5.14
(c.f.) 1P-352	125		10000	3000	8/19.5S	8/19.5	O-Th. Mas. Sp.	6-3 7/8x3 1/2††	236	8.3	217	135-4000	Own△•	4	Own	HF	H	** -5.14
(c.f.) 1P-362	137		10000	3020	8/19.5S	8/19.5	O-Th. Mas. Sp.	6-3 7/8x3 1/2††	236	8.3	217	135-4000	Own△•	4	Own	HF	H	** -5.14
1C-253	127		7500	3550	7/17.5S	8/19.5S	O-Th. Mas.▲▲	6-3 7/8x3 1/2††	236	8.3	217	135-4000	Own†△‡	3	Own	HF	H	** -4.57
1C-363	133		10000	3850	8/17.5S	8/17.5	O-Th. Mas.▲▲	6-3 7/8x3 1/2††	236	8.3	217	135-4000	Own△	4	Own	HF	H	** -5.14
1C-413	133		14000	4320	8/19.5D	8/19.5	O-Th. Mas.▲▲	6-3 7/8x3 1/2††	236	8.3	217	135-4000	Own	4	Own	HF	H	** -6.17
1C-433	157		14000	4460	8/19.5D	8/19.5	O-Th. Mas.▲▲	6-3 7/8x3 1/2††	236	8.3	217	135-4000	Own	4	Own	HF	H	** -6.17
1C-513	133		16000	5160	8/22.5D	8/22.5	O-Th. Mas.▲▲	6-3 7/8x3 1/2††	236	8.3	217	135-4000	Own	4	Own	HF	H	** -6.60
1C-523	145		16000	5210	8/22.5D	8/22.5	O-Th. Mas.▲▲	6-3 7/8x3 1/2††	236	8.3	217	135-4000	Own	4	Own	HF	H	** -6.60
(l.c.f.) 1L-523	133		16000	5220	8/22.5D	8/22.5	O-Th. Mas.▲▲	6-3 7/8x3 1/2††	236	8.3	217	135-4000	Own	4	Own	HF	H	** -6.60
1C-533	157		16000	5220	8/22.5D	8/22.5	O-Th. Mas.▲▲	6-3 7/8x3 1/2††	236	8.3	217	135-4000	Own	4	Own	HF	H	** -6.60
(l.c.f.) 1L-533	145		16000	5260	8/22.5D	8/22.5	O-Th. Mas.▲▲	6-3 7/8x3 1/2††	236	8.3	217	135-4000	Own	4	Own	HF	H	** -6.60
1C-553	175		16000	5430	8/22.5D	8/22.5	O-Th. Mas.▲▲	6-3 7/8x3 1/2††	236	8.3	217	135-4000	Own	4	Own	HF	H	** -6.60
(l.c.f.) 1L-563	175		16000	5460	8/22.5D	8/22.5	O-Th. Mas.▲▲	6-3 7/8x3 1/2††	236	8.3	217	135-4000	Own	4	Own	HF	H	** -6.60
1C-613	133		19500	5310	8/22.5D	10/22.5	O-Job Mas.▲▲	6-3 5/8x3 1/2††	261	8.0	235	150-4000	Own••	4	Own□□	HF	H	** -7.20
(l.c.f.) 1L-613	121		19500	5310	8/22.5D	10/22.5	O-Job Mas.▲▲	6-3 5/8x3 1/2††	261	8.0	235	150-4000	Own••	4	Own□□	HF	H	** -7.20
1C-623	145		19500	5330	8/22.5D	10/22.5	O-Job Mas.▲▲	6-3 5/8x3 1/2††	261	8.0	235	150-4000	Own••	4	Own□□	HF	H	** -7.20
1L-623	133		19500	5350	8/22.5D	10/22.5	O-Job Mas.▲▲	6-3 5/8x3 1/2††	261	8.0	235	150-4000	Own••	4	Own□□	HF	H	** -7.20
1C-633	157		19500	5350	8/22.5D	10/22.5	O-Job Mas.▲▲	6-3 5/8x3 1/2††	261	8.0	235	150-4000	Own••	4	Own□□	HF	H	** -7.20
(l.c.f.) 1L-633	145		19500	5380	8/22.5D	10/22.5	O-Job Mas.▲▲	6-3 5/8x3 1/2††	261	8.0	235	150-4000	Own••	4	Own□□	HF	H	** -7.20
1C-653	175		19500	5580	8/22.5D	10/22.5	O-Job Mas.▲▲	6-3 5/8x3 1/2††	261	8.0	235	150-4000	Own••	4	Own□□	HF	H	** -7.20
(l.c.f.) 1L-663	175		19500	5590	8/22.5D	10/22.5	O-Job Mas.▲▲	6-3 5/8x3 1/2††	261	8.0	235	150-4000	Own••	4	Own□□	HF	H	** -7.20
1C-683	197		19500	5870	8/22.5D	10/22.5	O-Job Mas.▲▲	6-3 5/8x3 1/2††	261	8.0	235	150-4000	Own••	4	Own□□	HF	H	** -7.20
(l.c.f.) 1L-693	197		19500	5770	8/22.5D	10/22.5	O-Job Mas.▲▲	6-3 5/8x3 1/2††	261	8.0	235	150-4000	Own••	4	Own□□	HF	H	** -7.20
(Sc.BusCh.) 1S-532	157		16000	4690	7/22.5D	8/22.5	O-Th. Mas.▲▲	6-3 7/8x3 1/2††	236	8.3	217	135-4000	Own	4	Own	HF	H	** 6.60
(Sc.BusCh.) 1S-622	197		21000	5150	8/22.5D	10/22.5	O-Job Mas.△△	6-3 5/8x3 1/2††	261	8.0	235	150-4000	Own••	4	Own□□	HF	H	6.60-7.20
(Sc.BusCh.) 1S-642 225[1]			21000	5360	8/22.5D	10/22.5	O-Job Mas.△△	6-3 5/8x3 1/2††	261	8.0	235	150-4000	Own••	4	Own□□	HF	H	6.60-7.20
(Sc.BusCh.) 1S-672 243			21000	5550	8/22.5D	10/22.5	O-Job. Mas.△△■	6-3 5/8x3 1/2††	261	8.0	235	150-4000	Own••	4	Own□□	HF	H	** -7.20
(Sc.BusCh.) 1S-772 243			23000	6090	8/22.5D	10/22.5	O-Wk. Mas. Sp.	8-4 1/8x3 1/2††	348	7.8	315	185-4800	Cla 265V	5	Own□□	HF	H	7.17-7.20
(Sc.BusCh.) 1S-792 261[1]			23000	6200	8/22.5D	10/22.5	O-Wk. Mas. Sp.	8-4 1/8x3 1/2††	348	7.8	315	185-4000	Cla 265V	5	Own□□	HF	H	7.17-7.20
1C-713	133		23000	5890	8/22.5D	10/22.5	O-Wk. Mas. Sp.	8-4 1/8x3 1/2††	348	7.8	315	185-4000	Cla 265V¢	5	Eaton□□	SBF	H	** -7.17
(l.c.f.) 1L-713	121		23000	5840	8/22.5D	10/22.5	O-Wk. Mas. Sp.	8-4 1/8x3 1/2††	348	7.8	315	185-4000	Cla 265V¢	5	Eaton□□	SBF	H	** -7.17
1C-723	145		23000	5930	8/22.5D	10/22.5	O-Wk. Mas. Sp.	8-4 1/8x3 1/2††	348	7.8	315	185-4000	Cla 265V¢	5	Eaton□□	SBF	H	** -7.17
(l.c.f.) 1L-723	133		23000	5880	8/22.5D	10/22.5	O-Wk. Mas. Sp.	8-4 1/8x3 1/2††	348	7.8	315	185-4000	Cla 265V¢	5	Eaton□□	SBF	H	** -7.17
1C-733	157		23000	6090	8/22.5D	10/22.5	O-Wk. Mas. Sp.	8-4 1/8x3 1/2††	348	7.8	315	185-4000	Cla 265V¢	5	Eaton□□	SBF	H	** -7.17
(l.c.f.) 1L-733	145		23000	5920	8/22.5D	10/22.5	O-Wk. Mas. Sp.	8-4 1/8x3 1/2††	348	7.8	315	185-4000	Cla 265V¢	5	Eaton□□	SBF	H	** -7.17
1C-753	175		23000	6150	8/22.5D	10/22.5	O-Wk. Mas. Sp.	8-4 1/8x3 1/2††	348	7.8	315	185-4000	Cla 265V¢	5	Eaton□□	SBF	H	** -7.17
(l.c.f.) 1L-763	175		23000	6140	8/22.5D	10/22.5	O-Wk. Mas. Sp.	8-4 1/8x3 1/2††	348	7.8	315	185-4000	Cla 265V¢	5	Eaton□□	SBF	H	** -7.17
1C-783	197		23000	6450	8/22.5D	10/22.5	O-Wk. Mas. Sp.	8-4 1/8x3 1/2††	348	7.8	315	185-4000	Cla 265V¢	5	Eaton□□	SBF	H	** -7.17
1C-813	133		25000	6190	9/22.5D	11/22.5	O-Wk. Mas.	8-4 1/8x3 1/2††	348	7.8	335	230-4400	Spi 3152	5	Eaton□□	SBF	H	** -7.67
(l.c.f.) 1L-813	121		25000	6150	9/22.5D	11/22.5	O-Wk. Mas.	8-4 1/8x3 1/2††	348	7.8	335	230-4400	Spi 3152	5	Eaton□□	SBF	H	** -7.67
1C-823	145		25000	6220	9/22.5D	11/22.5	O-Wk. Mas.	8-4 1/8x3 1/2††	348	7.8	335	230-4400	Spi 3152	5	Eaton□□	SBF	H	** -7.67
(l.c.f.) 1L-823	133		25000	6180	9/22.5D	11/22.5	O-Wk. Mas.	8-4 1/8x3 1/2††	348	7.8	335	230-4400	Spi 3152	5	Eaton□□	SBF	H	** -7.67
1C-833	157		25000	6390	9/22.5D	11/22.5	O-Wk. Mas.	8-4 1/8x3 1/2††	348	7.8	335	230-4400	Spi 3152	5	Eaton□□	SBF	H	** -7.67
(l.c.f.) 1L-833	145		25000	6220	9/22.5D	11/22.5	O-Wk. Mas.	8-4 1/8x3 1/2††	348	7.8	335	230-4400	Spi 3152	5	Eaton□□	SBF	H	** -7.67
1C-853	175		25000	6450	9/22.5D	11/22.5	O-Wk. Mas.	8-4 1/8x3 1/2††	348	7.8	335	230-4400	Spi 3152	5	Eaton□□	SBF	H	** -7.67
(l.c.f.) 1L-863	175		25000	6440	9/22.5D	11/22.5	O-Wk. Mas.	8-4 1/8x3 1/2††	348	7.8	335	230-4400	Spi 3152	5	Eaton□□	SBF	H	** -7.67
1C-883	197		25000	6750	9/22.5D	11/22.5	O-Wk. Mas.	8-4 1/8x3 1/2††	348	7.8	335	230-4400	Spi 3152	5	Eaton□□	SBF	H	** -7.67
(Tan.) 1M-733	157		36000	9730	8/22.5D	10/22.5	O-Wk. Mas.	8-4 1/8x3 1/2††	348	7.8	335	230-4400	Spi 3152††	5	Eaton	SBF	H	** -7.17
(Tan.) 1M-753	175		36000	9920	8/22.5D	10/22.5	O-Wk. Mas.	8-4 1/8x3 1/2††	348	7.8	335	230-4400	Spi 3152††	5	Eaton	SBF	H	** -7.17
(Tan.) 1M-783	193		36000	10100	8/22.5D	10/22.5	O-Wk. Mas.	8-4 1/8x3 1/2††	348	7.8	335	230-4400	Spi 3152††	5	Eaton	SBF	H	** -7.17
1T-623	97		19500	5430	8/22.5D	10/22.5	O-Job Mas.▲▲	6-3 5/8x3 1/2††	261	8.0	235	150-4000	Own••	4	Own□□	HF	H	** -7.20
1T-633	109		19500	5475	8/22.5D	10/22.5	O-Job Mas.▲▲	6-3 5/8x3 1/2††	261	8.0	235	150-4000	Own••	4	Own□□	HF	H	** -7.20
1T-663	133		19500	5620	8/22.5D	10/22.5	O-Job Mas.▲▲	6-3 5/8x3 1/2††	261	8.0	235	150-4000	Own••	4	Own□□	HF	H	** -7.20
1T-683	145		19500	5655	8/22.5D	10/22.5	O-Job Mas.▲▲	6-3 5/8x3 1/2††	261	8.0	235	150-4000	Own••	4	Own□□	HF	H	** -7.20
1T-723	97		23000	6075	8/22.5D	10/22.5	O-Wk. Mas. Sp.	8-4 1/8x3 1/2††	348	7.8	315	185-4000	Cla 265V¢	5	Eaton□□	SBF	H	** -7.17
1T-733	109		23000	6085	8/22.5D	10/22.5	O-Wk. Mas. Sp.	8-4 1/8x3 1/2††	348	7.8	315	185-4000	Cla 265V¢	5	Eaton□□	SBF	H	** -7.17
1T-763	133		23000	6260	8/22.5D	10/22.5	O-Wk. Mas. Sp.	8-4 1/8x3 1/2††	348	7.8	315	185-4000	Cla 265V¢	5	Eaton□□	SBF	H	** -7.17
1T-783	145		23000	6580	8/22.5D	10/22.5	O-Wk. Mas. Sp.	8-4 1/8x3 1/2††	348	7.8	315	185-4000	Cla 265V¢	5	Eaton□□	SBF	H	** -7.17
1T-823	97		25000	6395	9/22.5D	11/22.5	O-Wk. Mas.	8-4 1/8x3 1/2††	348	7.8	335	230-4400	Spi 3152	5	Eaton□□	SBF	H	** -7.67
1T-833	109		25000	6435	9/22.5D	11/22.5	O-Wk. Mas.	8-4 1/8x3 1/2††	348	7.8	335	230-4400	Spi 3152	5	Eaton□□	SBF	H	** -7.67
1T-863	133		25000	6605	9/22.5D	11/22.5	O-Wk. Mas.	8-4 1/8x3 1/2††	348	7.8	335	230-4400	Spi 3152	5	Eaton□□	SBF	H	** -7.67
1T-883	145		25000	6745	9/22.5D	11/22.5	O-Wk. Mas.	8-4 1/8x3 1/2††	348	7.8	335	230-4400	Spi 3152	5	Eaton□□	SBF	H	** -7.67
Cleveland LA	107		8200	5200	8/17.5S		Electric	Motor								HF	H	
PBX	69	85	4500	2400	6.70/15S		Electric	Motor							Dana 25	H	H	
LC	120	140	8000	5200	8/17.5S		Electric	Motor							Dana 79	H	H	
Divco 11	100[3]		7500	2925	7.00/16S•		Con F4162	4-3 7/8x4 3/4	162	6.1	123	47-2800	WG T9		Tim B-140	H		4.85-6.17
114	100[3]		7500	2930	7.00/16S•		Con F4162S	4-3 7/8x4 3/4	162	6.2	123	55-2900	WG T9		Tim B-140	H		4.85-6.17
12	100[3]		6000	2865	7.00/16S		Con F4162	4-3 7/8x4 3/4	162	6.1	123	47-2800	WG T87		Tim B-140	H		4.85-6.17
124	100[3]		6000	2880	7.00/16S		Con F4162S	4-3 7/8x4 3/4	162	6.2	123	55-2900	WG T87		Tim B-140	H		4.85-6.17
13	100[3]		7300	2940	7.00/16S•		Con F4162	4-3 7/8x4 3/4	162	6.1	123	47-2800	WG T9		Tim B-140	H		4.85-6.17
134	100[3]		7300	2950	7.00/16S•		Con F4162S	4-3 7/8x4 3/4	162	6.2	123	55-2900	WG T9		Tim B-140	H		4.85-6.17
15	100[3]		7600	2995	7.00/16S•		Her OXLD3	6-3 7/8x4 1/2	237	6.7	185	92-3200	WG T9		Tim B-140	H		4.85-6.17
154	100[3]		7600	2998	7.00/16S•		Her OXLD3	6-3 7/8x4 1/2	237	6.7	185	92-3200	WG T9		Tim B-140	H		4.85-6.17
214	127[1/2]		12000	3662	6.50/20D		Her OXLD3	6-3 7/8x4 1/2	237	6.7	185	92-3200	WG T9		Tim C-100	S		5.29-6.80
224	127[1/2]		8000	3200	7.00/16S•		Her OXLD3	6-3 7/8x4 1/2	237	6.7	185	92-3200	WG T87		Tim B-140	H		4.85-6.17
244	127[1/2]		7500	3127	7.00/16S•		Con F4162S	4-3 7/8x4 3/4	162	6.2	123	55-2900	WG T87		Tim	S		5.14-6.6
334	115		10800	3315	6.50/20S†		Her OXLD3	6-3 7/8x4 1/2	237	6.7	185	92-3200	WG T9		Tim C-100	S		5.29-6.80
344	115		7500	3175	7.00/16S•		Her OXLD3	6-3 7/8x4 1/2	237	6.7	185	92-3200	WG T87		Tim B-140	H		4.85-6.17
364	115		6500	3112	7.00/16S		Con F4162S	4-3 7/8x4 3/4	162	6.2	123	55-2900	WG T87		Tim B-140	H		4.85-6.17
364HD	115		9500	3143	7.50/16S▲		Con F4162S	4-3 7/8x4 3/4	162	6.2	123	55-2900	WG T87		L150	H		5.57-6.16
374	115		9500	3232	7.50/16S▲		Her OXLD3	6-3 7/8x4 1/2	237	6.7	185	92-3200	WG T9		Tim C-100	S		5.29-6.80

For References and Abbreviations, see page 133

For Directory of the Truck Manufacturers listed above, see page 53

1961 TRUCK SPECIFICATIONS—*Continued*

MAKE AND MODEL	WHEELBASE Minimum Standard	WHEELBASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES (D-dual rear, S-single rear) Standard Front and Rear	TIRE SIZES Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	TRANSMISSION Make and Model	Forward Speeds	REAR AXLE Make and Model	Gear and Type	Drive and Torque	Gear Ratio Range in High
Divco—Cont'd 42	130	....	7000	3370	7.50/16S	.....	Con F6226	6-3 7/8x4 1/2	226	8.00	192	117-3500	WG T98	....	Tim B-140	H	....	4.35-6.17
52	117 1/2	....	7000	3281	7.50/16S	.....	Con F 6226	6-3 7/8x4 1/2	226	8.00	192	117-3500	WG T98	....	Tim B-140	H	....	4.35-6.17
41	130	....	16500	4307	7.00/20■	.....	Her G298H	6-3 3/4x4 1/2	298	7.5	271	128-3200	WG T98	....	Tim D-100	H	....	5.29-7.2
51	117 1/2	....	16500	4277	7.00/20■	.....	Her G298H	6-3 3/4x4 1/2	298	7.5	271	128-3200	WG T98	....	Tim D-100	H	....	5.29-7.2
71	153 5/8	....	16500	4386	7.50/20	.....	Her G 298H	6-3 3/4x4 1/2	298	7.5	271	128-3200	WG T98	....	Tim D-100	H	....	5.29-7.2
72	152 5/8	....	10000	4059	7.00/17	.....	Con F6226	6-3 7/8x4 5/8	226	8.00	192	117-3500	WG T98	....	Tim C-100	H	....	5.29-6.8
57	117 1/2	....	7000	3092	7.00/17	.....	Con F6226	6-3 7/8x4 5/8	226	8.00	192	117-3500	WG T87	....	Spi 60	H	....	** -4.88
43	130	....	16500	....	7.00/20■	.....	Her G298H	6-3 3/4x4 1/2	298	7.5	271	128-3200	WG T98	....	Tim D-100	H	....	4.35-6.17
44	130	....	7000	....	7.50/16S	.....	Con F6226	6-3 7/8x4 5/8	226	8.00	192	117-3500	WG T98	....	Tim B-140	H	....	4.35-6.17
45	130	....	8600	....	8.25/16S	.....	Con F6226	6-3 7/8x4 5/8	226	8.00	192	117-3500	WG T98	....	Tim B-140	H	....	4.35-6.17
53	117 1/2	....	16500	....	7.00/20■	.....	Her G298H	6-3 3/4x4 1/2	298	7.5	271	128-3200	WG T98	....	Tim B-140	H	....	5.29-7.2
54	117 1/2	....	7000	....	7.50/16S	.....	Con F6226	6-3 7/8x4 5/8	226	8.00	192	117-3500	WG T98	....	Tim B-140	H	....	4.35-6.17
55	117 1/2	....	8600	....	7.50/16S	.....	Con F6226	6-3 7/8x4 5/8	226	8.00	192	117-3500	WG T98	....	Tim B-140	H	....	4.35-6.17
58	117 1/2	....	7000	....	7/17.5S	.....	Con G4193	4-3 3/4x4 5/8	193	7.1	172	80-3500	WG T87	....	Spi 60	H	....	** -4.88
73	153 5/8	....	16500	....	7.00/20■	.....	Her G298H	6-3 3/4x4 1/2	298	7.1	271	128-3200	WG T98	....	Tim D-100	H	....	5.29-6.8
74	153 5/8	....	10000	....	7.00/17	.....	Con F6226	6-3 7/8x4 5/8	226	8.00	192	117-3500	WG T98	....	Tim C-100	H	....	5.29-6.8
75	153 5/8	....	13000	....	7.50/17	.....	Her G298H	6-3 3/4x4 1/2	298	7.5	271	128-3200	WG T98	....	Tim C-100	H	....	5.29-6.8
76	153 5/8	....	13000	....	7.50/17	.....	Her G298H	6-3 3/4x4 1/2	298	7.5	271	128-3200	WG T98	....	Tim C-100	H	....	5.29 6.8
Dodge R6-D100	114	122	5100	2430	6.70/15S	6.50/16S	Own[1]	6-3.40x4.13	225	8.2	215	140-3900	Own A745[9]	3	Own RA36	Hy	H	3.58-4.56
R8-D100	114	122	5100	2570	6.70/15S	6.50/16S	Own	8-3.91x3.31	318	8.25	286	200-3900	Own A745[9]	3	Own RA36	Hy	H	3.58-4.56
R6-D200	122	122	7500	2740	6.50/16S	8/19.5S	Own	6-3.40x4.13	225	8.2	215	140-3900	Own A745[9]	3	Spi 60	Hy	H	4.10-4.88
R8-D200	122	122	7500	2880	6.50/16S	8/19.5S	Own	8-3.91x3.31	318	8.3	286	200-3900	Own A745[9]	3	Spi 60	Hy	H	4.10-4.88
R6-D300	133	133	10000	3085	8/17.5S	8/19.5	Own	6-3.40x4.13	225	8.2	215	140 3900	NP 420[10]	4	Spi 70	Hy	H	4.88-5.87
R8-D300	133	133	10000	3225	8/17.5S	8/19.5	Own	8-3.91x3.31	318	8.3	286	200 3900	NP 420[10]	4	Spi 70	Hy	H	4.88 5.87
R6-D400	133	175	15000	4020	7/22.5	8.25/20	Own	6 3.44x4.50	251	7.1	216	125-3600	NP 420[11]	4	Own RA115*	Hy	H	5.63 6.83
R8-D400	133	175	15000	4130	7/22.5	8.25/20	Own	8-3.91x3.31	318	8.3	288	202-3900	NP 420[11]	4	Own RA115*	Hy	H	5.63 6.83
R6-D500	133	197	19500	4335	8/22.5	9.00/20	Own[2]	6-3.44x4.50	251	7.1	216	125-3600	NP 420[14]	4	Tim F147*	Hy	H	6.20 6.80
R8-D500	133	197	19500	4445	8/22.5	9.00/20	Own[3]	8-3.91x3.31	318	8.3	288	202-3900	NP 420[14]	4	Tim F147*	Hy	H	6.20 6.80
R8-D600	133	197	22000	5005	8.25/20	9.00/20	Own[3]	8 3.91x3.31	318	8.3	288	202-3900	NP 420[14]	4	Eat 1614*	Hy	H	6.50-7.17
R8-D700	133	197	25000	5275	8.25/20	10.00/20	Own	8-4.12x3.38	361	7.5	310	194-3600	NP 540[13]	5	Tim H141*	Hy	H	** 6.80
R8-C500	121	181	19500	^5205	8/22.5	9.00/20	Own[3]	8-3.91x3.31	318	8.3	288	202-3900	NP 420[14]	4	Tim F147*	Hy	H	6.20 6.80
(l.c.f.) R8-C600	121	181	22000	^6170	8.25/20	9.00/20	Own	8-4.12x3.38	361	7.5	291	178-3600	NP 433[15]	4	Eat 1614*	Hy	H	6.50-7.17
(l.c.f.) R8-C700	122	200	25000	^6460	8.25/20	10.00/20	Own	8-4.12x3.38	361	7.5	310	194-3600	NP 540[13]	5	Tim H141*	Hy	H	** 6.80
(l.c.f.) R8-C800	122	200	28000	^6920	9.00/20	11.00/20	Own	8-4.12x3.38	361	7.5	335	204-3600	NP 541[16]	5	Eat 1790A*	S	H	** 7.17
(l.c.f.) R8-C900	122	200	30000	^7390	10.00/20	11.00/20	Own[6]	8-4.19x3.75	413	7.5	373	217-3600	Cla 301V[17]	5	Tim QT140*	Hy	H	** 7.17
(l.c.f.) R8-C1000	122	212	32000	^8270	10.00/20	11.00/22	Own	8-4.19x3.75	413	7.5	400	228-3600	Cla 301V[17]	5	Tim R140*	Hy	H	** 6.83
(D) (l.c.f.) R6-KC800	134	182	27000	^8690	9.00/20	10.00/20	Cum	6-4.43x5.00	464	14.5	406	175-2500	Cla 301V[18]	5	Eat 1790A*	S	H	** 4.88
(D) (l.c.f.) R6-KC900	134	182	29000	^9100	10.00/20	11.00/20	Cum	6-4.43x5.00	464	14.5	406	175-2500	Cla 301V[18]	5	Tim QT140*	Hy	H	** 5.29
(D) (l.c.f.) R6-NC900	134	182	29000	^10100	10.00/20	11.00/20	Cum[7]	6-4.88x6.00	672	14.6	504	180-2100	Spi 6452A[19]	5	Tim R140*	Hy	H	4.11 5.29
(D) (l.c.f.) R6-NC1000	134	182	30000	^10135	10.00/20	11.00/22	Cum	6-5.12x6.00	743	15.5	605	220-2100	Spi 6452A[19]	5	Tim R140*	Hy	H	4.11 5.29
(f.c.) R6-P200	104	122	7500	2315	6.50/16S	8 19.5S	Own[1]	6-3.40x4.13	225	8.2	215	140-3900	Own A745[9]	3	Spi 60	Hy	H	4.10-4.88
(f.c.) R6-P300	104	137	10000	2700	7/17.5S	7/17.5	Own	6-3.40x4.13	225	8.2	215	140-3900	WG T87E[9]	3	Spi 70	Hy	H	4.88-5.87
(f.c.) R6-P400	137	154	15000	3565	8/19.5S	7.50/20	Own	6-3.44x4.50	251	7.1	216	125-3600	WG T87E[9]	3	Own RA 115	Hy	H	5.63 6.83
(Sc.BusCh.) R6-S400	157	157	15000	4225	7/22.5	8/22.5	Own	6-3.44x4.50	251	7.1	216	125-3600	NP 420[11]	4	Own RA115*	Hy	H	5.63 6.83
(Sc.BusCh.) R8-S400	157	157	15000	4335	7/22.5	8/22.5	Own	8-3.91x3.31	318	8.3	288	202-3900	NP 420[11]	4	Own RA115*	Hy	H	5.63 6.83
(Sc.BusCh.) R6-S500	197	240	20000	4505	8/22.5	9.00/20	Own[2]	6-3.44x4.50	251	7.1	216	125 3600	NP 420[11]	4	Tim F-147*	Hy	H	6.20 6.80
(Sc.BusCh.) R8-S500	197	240	20000	4615	8/22.5	9.00/20	Own[3]	8-3.91x3.31	318	8.3	288	202-3900	NP 420[11]	4	Tim F147*	Hy	H	6.20-6.80
(Sc.BusCh.) R8-S600	240	258	22000	5850	8.25/20	9.00/20	Own[3]	8-3.91x3.31	318	8.3	288	202-3900	NP 420[11]	4	Eat 1614*	Hy	H	6.50-7.17
Duplex T-308	136	220	23000	^6600	8.25/20	9.00/20	Int BD308	6-3 7/8x4 1/2	308	6.5	273	145-3600	Fu 5B330	5	Tim H140	B	H	** -7.2
R-427	136	220	30000	^8820	9.00/20	11.00/20	Con B6427	6-4 1/8x4 7/8	427	6.6	325	141-2500	Fu 5A43	5	Tim QT340	Fd	R	6.42-8.38
R-450	136	220	30000	^8850	9.00/20	11.00/20	Int RD450	6-4 5/8x5	450	6.5	388	182-3000	Fu 5A43	5	Tim QT340	Fd	R	6.42-8.38
K-501	148	220	34000	^10500	11.00/20	12.00/20	Int RD501	6-4 1/2x5 1/4	501	6.5	444	212-3000	Fu 5A620	5	Tim U200	2F	R	** -9.76
L-6602	148	220	37000	^11650	11.00/20	12.00/20	Con R6602	6-4 7/8x5 3/4	602	6.1	465	200-2600	Fu 5C650	5	Tim U200	2F	R	** -9.76
(D) LC-600	148	220	37000	^12900	11.00/20	12.00/20	Cum HRB600	6-5 1/2x6	743	16.0	540	165-1800	Fu 5C650	5	Tim U200	2F	R	** -6.42
Ford Sedan Del.	109	109	3421	.....	6.50/13.4S	6.50/13.6S	Own EEN	6-3.50x2.50	144	8.7	134	85-4200	Own	3	Own	H	H	3.50*
Ranchero	109	109	3421	.....	6.50/13.4S	6.50/13.6S	Own EEN	6-3.50x2.50	144	8.7	134	85-4200	Own	3	Own	H	H	3.50*
Pick-Up	90	90	4350	.....	6.50/13.4S	7.00/13.6S	Own EEN	6-3.50x2.50	144	8.7	134	85-4200	Own	3	Own	H	H	3.50*
Van	90	90	4350	.....	6.50/13.4S	7.00/13.6S	Own EEN	6-3.50x2.50	144	8.7	134	85-4200	Own	3	Own	H	H	3.50*
Bus	90	90	4350	.....	6.50/13.4S	7.00/13.6S	Own EEN	6-3.50x2.50	144	8.7	134	85-4200	Own	3	Own	H	H	3.50*
F-100	114	122	5000	2380	6.70/15S	7/17.5S	Own EBR*	6-3.62x3.60	223	8.4	200	135-4000	Own*	3	Own 3300*	H 1/2	H	3.70*
F-250	122	122	7400	2620	6.50/16S	8/19.5S	Own EBR*	6-3.62x3.60	223	8.4	200	135-4000	Own*	3	Spi 60*	HF	H	** -4.88
F-350	132	132	9800	3015	8/17.5S	8/17.5	Own EBS*	6-3.62x3.60	223	8.4	200	135-4000	WG T98A*	4	Tim B-140	HF	H	5.14*
F-500	132	156	15000	3815	7/22.5D	9/22.5	Own EBS*	6-3.62x3.60	223	8.4	200	135-4000	WG T98A*	4	Tim C-100*	HF	H	6.20*
F-600	132	194	17000*	4295	8/22.5D	10/22.5	Own EBS*	6-3.62x3.60	223	8.4	200	135-4000	WG T98A*	4	Tim F-106*	HF	H	6.80*
F-700	132	194	21000*	4575	8/22.5D	11/22.5	Own EEJ*	8-3.75x3.30	292	8.0	270	160-4000	WG T98A*	4	Tim F-106*	HF	H	** -7.20
F-750	134	212	22000*	^6105	9/22.5D	11/22.5	Own ECT	8-3.80x3.66	332	7.5	307	200-3800	Cla 250V*	5	Eat 1619*	SF	H	** -7.17
F-800	134	212	25000*	^6640	10/22.5D	12/22.5	Own ECT	8-3.80x3.66	332	7.5	307	200-3800	Cla 265V*	5	Eat 1790*	SF	H	7.17*
F-850	146	212	25000*	^7225	10/22.5D	12/22.5	Own EDL*	8-4.12x3.75	401	7.5	343	226-3600	Spi 5652*	5	Eat 1790*	SF	H	6.50*
F-950	146	212	29000*	^7840	11/22.5D	12/22.5	Own EDL*	8-4.12x3.75	401	7.5	343	226-3600	Spi 5652*	5	Eat 1892*	SF	H	6.50*
F-1000	146	212	31000*	^8485	11/22.5D	12/22.5	Own EDM*	8-4.50x3.75	477	7.5	415	253-3400	Spi 6352*	5	Eat 1911*	SF	H	6.67*
F-1100 O.H.	146	212	36000	^9360	11/22.5D	12/22.5	Own EDM*	8-4.50x3.75	477	7.5	415	253-3400	Spi 6352*	5	Tim U-200*	HF	H	7.03*
C-550	99	153	18000	^5250	7/22.5D	9/22.5	Own EEJ*	8-3.75x3.30	292	8.0	270	160-4000	WG T98A*	4	Tim D-100*	HF	H	5.83*
C-600	99	153	19500*	^5480	8/22.5D	10/22.5	Own EEJ*	8-3.75x3.30	292	8.0	270	160-4000	WG T98A*	4	Tim F-104*	HF	H	6.20*
C-700	99	175	22000*	^6150	8/22.5D	11/22.5	Own EEJ*	8-3.75x3.30	292	8.0	270	160-4000	WG T98A*	4	Tim F-106*	HF	H	** -7.20
C-750	99	175	23000*	^6670	9/22.5D	11/22.5	Own ECT	8-3.80x3.66	332	7.5	307	200-3800	Cla 250V*	5	Eat 1618*	SF	H	** -7.17
C-800	99	175	27000	^6990	10/22.5D	12/22.5	Own ECT	8-3.80x3.66	332	7.5	307	200-3800	Cla 265*	5	Eat 1790*	SF	H	7.17*
C-850	99	175	27000	^7875	10/22.5D	12/22.5	Own EDL*	8-4.12x3.75	401	7.5	343	226-3600	Spi 5652*	5	Eat 1790*	SF	H	6.50*
C-950	99	175	3000*	^8325	11/22.5D	12/22.5	Own EDL*	8-4.12x3.75	401	7.5	343	226-3600	Spi 5652*	5	Eat 1892*	SF	H	6.50*
C-1000	99	175	31000*	^8870	11/22.5D	12/22.5	Own EDM*	8-4.50x3.75	477	7.5	415	253-3400	Spi 6352*	5	Eat 1911*	SF	H	6.67*
C-1100 O.H.	111	175	36000	^9380	11/22.5D	12/22.5	Own EDM*	8-4.50x3.75	477	7.5	415	253-3400	Spi 6352*	5	Tim U-200*	SF	H	7.03*
H-950	126	176	6000*	^9270	11/22.5D	12/22.5	Own EDL*	8-4.12x3.75	401	7.5	343	226-3600	Spi 5652*	5	Eat 1893*	SF	H	6.50*
H-1000	126	176	76800	^9870	11/22.5D	12/22.5	Own EDN	8-4.50x4.20	534	7.5	481	266-3200	Spi 6352*	5	Eat 19503*	.....	H	4.88-6.63
(D) HD-950	126	176	6000*	^10725	11/22.5D	12/22.5	Cum NH-180*	6-4.88x6.00	672	15.5	504	180-2100	Spi 6352*	5	Eat 1911*	SF	H	4.88*
(D) HD-1000	126	176	76800	^10890	11/22.5D	12/22.5	Cum NH-220	6-5.12x6.00	743	15.5	606	220-2100	Spi 6452-A*	5	Eat 1911*	SF	H	4.88*
(Tan.) HT-850	138	158	60000*	^11900	11/22.5D	12/22.5	Own EDL*	8-4.12x3.75	401	7.5	343	226-3600	Spi 5652*	5	Eat 30DS*	SF	H	7.17*
(Tan.) HT-950	138	158	76800	^12185	11/22.5D	12/22.5	Own EDN	8-4.50x4.20	534	7.5	481	266-3200	Spi 6352*	5	Eat 34DS*	SF	H	6.50*
(D) Tan. HDT-850	138	246	60000*	^13140	11/22.5D	12/22.5	Cum NH-180*	6-4.88x6.00	672	15.5	504	180-2100	Spi 6352*	5	Tim TK-560*	SF	H	4.88*
(D) Tan. HDT-950	138	246	76800	^13160	11/22.5D	12/22.5	Cum NH-220	6-5.12x6.00	743	15.5	606	220-2100	Spi 6453-A*	5	Tim TK-460*	SF	H	4.88*
(Tan.) T-700	158	194	28000*	^7800	8/22.5D	10/22.5	Own ECS	8-3.66x3.72	302	7.5	280	187-3800	Cla 250V*	5	Eat 22M*	HF	H	6.70*
(Tan.) T-750	158	212	35000*	^9110	9/22.5D	11/22.5	Own ECT	8-3.80x3.66	332	7.5	307	200-3800	Cla 265V*	5	Eat 28M	HF	H	7.79*
(Tan.) T-800	158	212	43000*	^9710	10/22.5D	12/22.5	Own ECT	8-3.80x3.66	332	7.5	307	200-3800	Cla 265*	5	Eat 30DS*	SF	H	** -7.17

For References and Abbreviations, see page 133

For Directory of the Truck Manufacturers listed above, see page 53

1961 TRUCK SPECIFICATIONS—*Continued*

MAKE AND MODEL	WHEELBASE Minimum Standard	WHEELBASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	TRANSMISSION: Make and Model	Forward Speeds	REAR AXLE: Make and Model	Gear and Type	Drive and Torque	Gear Ratio Range in High
Ford—Cont'd																		
(Tan.) T-850	146	212	43000*	▲10180	10/22.5D	12/22.5	Own EDL*	8-4.12x3.75	401	7.5	343	226-3600	Spi 5652*	5	Eat 30DS*	SF	H	7.17*
(Tan.) T-950	158	212	46000*	▲11835	11/22.5D	12/22.5	Own EDL*	8-4.12x3.75	401	7.5	343	226-3600	Spi 5652*	5	Eat 38D*	SF	H	8.38*
(Sc.Bus) B-500	156	156	15000	4010	7/22.5D	9/22.5	Own EBS*	6-3.62x3.60	223	8.4	200	135-4000	WG T98A*	4	Tim C-100*	HF	H	6.20*
(Sc.Bus) B-600	198	222	17000*	4755	8/22.5D	10/22.5	Own EBS*	6-3.62x3.60	223	8.4	200	135-4000	WG T98A*	4	Tim F-106*	HF	H	** -6.80
(Sc.Bus) B-700	242	260	21000*	5275	8/22.5D	11/22.5	Own EEJ*	8-3.75x3.30	292	8.0	270	160-4000	WG T98A*	4	Tim F-106*	HF	H	** -7.20
(Sc.Bus) B-750	242	260	22000	5695	9/22.5D	11/22.5	Own ECT	8-3.80x3.66	332	7.5	307	200-3800	Cla 250V*	5	Eat 1614*	HF	H	** -7.17
..... P-350	104	122	8000	2360	7/17.5S	8/19.5S	Own EBT*	6-3.62x3.60	223	8.4	200	135-4000	Own*	3	Spi 60*	HF	H	4.88*
..... P-400	137	137	10000	2590	8/17.5S	8/19.5	Own EBT*	6-3.62x3.60	223	8.4	200	135-4000	WG T89C*	3	Spi B-140	HF	H	5.14*
..... P-500	137	154	15000	3270	8/19.5S	8/22.5	Own EBT*	6-3.62x3.60	223	8.4	200	135-4000	WG T87E*	3	Tim C-100*	HF	H	6.20*
Kenworth (D) ♦905	.....	.....	33000	10750	10.00/20	11.00/22	Cum C175	6-4 7/8x5	464	16.3	405	175-2500	5A65▲▲	15	Tim R170	H2F	H	.....
(D) ♦908	.....	.....	43000	12700	10.00/20	11.00/22	Cum C175	6-4 7/8x5	464	16.3	405	175-2500	5A65▲▲	15	Tim R170	H2F	H	.....
(D) ♦909	.....	.....	47000	12765	10.00/20	11.00/22	Cum C175	6-4 7/8x5	464	16.3	405	175-2500	5A65▲▲	15	Tim SQHD	WF	H	.....
(D) ♦921	153 1/4	255	33000	11800	10.00/20	11.00/22	Cum NH220	6-5 1/2x6	743	16.0	535	220-2100	8241▲▲	15	Tim R170	H2F	H	5.91-9.76
(D) ♦922	191	255	43000	13800	10.00/20	11.00/22	Cum NH220	6-5 1/2x6	743	16.0	535	220-2100	8241▲▲	15	Tim R170♦♦	2F	H	5.91-9.76
(D) ♦923	190	255	47000	13865	10.00/20	11.00/22	Cum NH220	6-5 1/2x6	743	16.0	535	220-2100	8241▲▲	15	Tim SQHD	WF	L	5.67-8.20
(D) ♦924	190	255	61000	16200	10.00/20	11.00/22	Cum NH220	6-5 1/2x6	743	16.0	535	220-2100	8241▲▲	15	Tim SRD	WF	L	4.72-8.20
(D) L924	190	255	60000	16400	10.00/22	11.00/24	Cum NH220	6-5 1/2x6	743	16.0	535	220-2100	8241▲▲	15	Tim SRD ■	B2F	L	5.78-9.11
(D) ♦925	190	255	46000	13830	10.00/20	11.00/22	Cum NH220	6-5 1/2x6	743	16.0	535	220-2100	8241▲▲	15	Tim SQHD	.....	.....	.....
(D) 552	178	.....	54000	22500	13.00/24	13.00/24	Cum NH220	6-5 1/2x6	743	16.0	535	220-2100	8241▲▲	15	Tim SFD4640	B2F	L	8.07-11.5
(D) 848	210 3/4	234	65000	21441	12.00/24	14.00/24	Cum NH220	6-5 1/2x6	743	16.0	535	200-2100	8241▲▲	15	Tim SFD4640	B2F	L	8.07-11.5
(D) 849	210 3/4	234	65000	22800	12.00/24	14.00/24	Cum NH220	6-5 1/2x6	743	16.0	535	200-2100	8241▲▲	15	Tim SFD4640	B2F	L	8.07-11.5
Marmon-Herr.																		
(Bus Chasis) 64C	177	.....	25000	.....	9.00/20D	11.00/20	Ford ECT■	8-3 11/16x3 1/2	332	7.5	307	200-3800	.....	6	.....	HF	H	6.8 -7.2
(Bus Chasis) 66C	204	.....	25000	.....	9.00/20D	11.00/20	Ford ECT■	8-3 11/16x3 1/2	332	7.5	307	200-3800	.....	6	.....	HF	H	6.8 -7.2
(Bus Chassis) 65C	231	.....	25000	.....	9.00/20D	11.00/20	Ford ECT■	8-3 11/16x3 1/2	332	7.5	307	200-3800	.....	6	.....	HF	H	6.8-7.2
Peterbilt (D) 281	152*	Opt	33000	▲10800	Opt	11.00/22	Cum NH220B[1]	6-5 1/2x6	743	15.5	606	220-2100	Spicer[2]	12	Tim R230[1]	H2F	H	4.41-7.03
(D) (c.o.e.) 282	143.*	Opt	33000	▲10900	Opt	11.00/22	Cum NH220B[1]	6-5 1/2x6	743	15.5	606	220-2100	Spicer[2]	12	Tim R230[1]	H2F	H	4.41-7.03
Reo C-200	125	185	18500	▲5355	8/22.5	10/22.5	Own OA110‡	6-3 5/8x4 1/2	255	6.7	194	110-3400	WG T98A	4	Tim F145♦	HF	H	6.2 -7.2
..... C-201	125	185	19500	▲5355	8/22.5	10/22.5	Own OA110‡	6-3 5/8x4 1/2	255	6.7	194	110-3400	WG T98A	4	Tim F145♦	HF	H	6.2 -7.2
..... C-202	125	185	20500	▲5575	8/22.5	10/22.5	Own OA110‡	6-3 5/8x4 1/2	255	6.7	194	110-3400	WG T98A	4	Tim F145♦	HF	H	6.2 -7.2
..... C-203	125	185	18500	▲6215	8/22.5	10/22.5	Own OA110‡	6-3 5/8x4 1/2	255	6.7	194	110-3400	WG T98A	4	Tim F345	HFd	H	6.13-8.88
..... C-300	130	185	22000	▲6295	10/22.5	11/22.5	Own OA1304	6-3 7/8x4 1/2	292	6.9	230	130-3300	Cla 250V	5	Tim H140♦	HF	H	** -6.16
..... C-301	130	185	23000	▲6295	10/22.5	11/22.5	Own OA1304	6-3 7/8x4 1/2	292	6.9	230	130-3300	Cla 250V	5	Tim H140♦	HF	H	6.16-7.2
..... C-302	130	185	23000	▲6330	10/22.5	11/22.5	Own OA1304	6-3 7/8x4 1/2	292	6.9	230	130-3300	Cla 250V	5	Tim H140♦	HF	H	6.16-7.2
..... C-303	130	185	22000	▲7095	10/22.5	11/22.5	Own OA1304	6-3 7/8x4 1/2	292	6.9	230	130-3300	Cla 250V	5	Tim H340	HFd	H	6.16-8.22
..... DF-300	99	.....	23000	▲6840	9.00x20	10.00x20	Own OA145♣	6-4 1/8x4 1/2	331	6.73	270	145-3200	NP 540	5	Tim H140♦	HF	H	6.16-7.2
..... DF-301	99	.....	24000	▲6840	9.00x20	10.00x20	Own OA145♣	6-4 1/8x4 1/2	331	6.73	270	145-3200	NP 540	5	Tim H140♦	HF	H	6.16-7.2
..... DF-302	99	.....	24000	▲6630	9.00x20	10.00x20	Own OA145♣	6-4 1/8x4 1/2	331	6.73	270	145-3200	NP 540	5	Tim H410♦	HF	H	6.16-7.2
..... DF-303	99	.....	23000	▲7735	9.00x20	10.00x20	Own OA145♣	6-4 1/8x4 1/2	331	6.73	270	145-3200	NP 540	5	Tim H340	HFd	H	6.16-8.22
..... D-303	134	.....	22000	.....	10/22.5	10.00/20	Own OA1304	6-3 7/8x4 1/2	292	6.9	230	130-3300	Cla 250V	5	Tim H340	HFd	H	6.16-7.20
..... C-400	130	185	23500	▲6590	10/22.5	11/24.5	Own OA1451	6-4 1/8x4 1/2	331	6.7	270	145-3200	Cla 250V	5	Tim L140♦	HF	H	6.16-7.2
..... C-401	130	185	25500	▲6590	10/22.5	11/24.5	Own OA1451	6-4 1/8x4 1/2	331	6.7	270	145-3200	Cla 250V	5	Tim L140♦	HF	H	6.16-7.2
..... C-402	130	185	26000	▲6880	10/22.5	11/24.5	Own OA1451	6-4 1/8x4 1/2	331	6.7	270	145-3200	Cla 250V	5	Tim L140♦	HF	H	6.16-7.2
..... C-403	130	185	23500	▲7515	10/22.5	11/24.5	Own OA1451	6-4 1/8x4 1/2	331	6.7	270	145-3200	Cla 250V	5	Tim L340	HFd	H	5.99-8.73
..... DF-400	99	.....	2500	▲6915	9.00x20	10.00x22	Own OA145†	6-4 1/8x4 1/2	331	6.73	270	145-3200	NP 540	5	Tim L140♦	HF	H	6.16-7.2
..... DF-401	99	.....	26000	▲6915	9.00x20	10.00x22	Own OA-145†	6-4 1/8x4 1/2	331	6.73	270	145-3200	NP 540	5	Tim L140♦	HF	H	6.16-7.2
..... DF-402	99	.....	26000	▲6995	9.00x20	10.00x22	Own OA145†	6-4 1/8x4 1/2	331	6.73	270	145-3200	NP 540	5	Tim L140♦	HF	H	6.16-7.2
..... DF-403	99	.....	25000	▲7855	9.00x20	10.00x22	Own OA145†	6-4 1/8x4 1/2	331	6.73	270	145-3200	NP 540	5	Tim L340	HFd	H	5.99 8.73
..... D-403	134	.....	23500	.....	10/22.5	10.00/22	Own OA145†	6-4 1/8x4 1/2	331	6.7	270	145-3200	Cla 250V	5	Tim L340	HFd	H	5.99 8.73
..... C-500	130	185	29000	▲7715	11/22.5	12/22.5	Own OH170■	6-4 1/8x4 1/2	331	7.5	297	170-3400	Spi 3152	5	Tim QT140♦	HF	H	6.16-7.8
..... C-501	130	185	31000	▲7715	11/22.5	12/22.5	Own OH170■	6-4 1/8x4 1/2	331	7.5	297	170-3400	Spi 3152	5	Tim QT140♦	HF	H	6.16-7.8
..... C-502	130	185	31000	▲7785	11/22.5	12/22.5	Own OH170■	6-4 1/8x4 1/2	331	7.5	297	170-3400	Spi 3152	5	Tim QT140♦	HF	H	6.16-7.8
..... C-503	130	185	29000	▲8380	11/22.5	12/22.5	Own OH170■	6-4 1/8x4 1/2	331	7.5	297	170-3400	Spi 3152	5	Tim QT340	HFd	H	6.00-9.01
..... DF-500	99	.....	29000	▲7765	10.00x20	11.00x20	Own OH170■	6-4 1/8x4 1/2	331	7.5	297	170-3400	Cla 300V	5	Tim QT140♦	HF	F	6.16-7.8
..... DF-501	99	.....	31000	▲7765	10.00x20	11.00x20	Own OH170■	6-4 1/8x4 1/2	331	7.5	297	170-3400	Cla 300V	5	Tim QT140♦	HF	F	6.16-7.8
..... DF-502	99	.....	31000	▲7845	10.00x20	11.00x20	Own OH170■	6-4 1/8x4 1/2	331	7.5	297	170-3400	Cla 300V	5	Tim QT140♦	HF	F	6.16-7.8
..... DF-503	99	.....	29000	▲8695	10.00x20	11.00x20	Own OH170■	6-4 1/8x4 1/2	331	7.5	297	170-3400	Cla 300V	5	Tim QT340	HFd	F	6.00-9.01
..... D-503	138	.....	29000	.....	11/22.5	11.00/22	Own OH170■	6-4 1/8x4 1/2	331	7.5	297	170-3400	Spi 3152	5	Tim QT340	HFd	H	6.00-9.01
(c.o.e.) DC-403	108	.....	26000	▲8850	10/22.5	11/24.5	Own OA145†	6-4 1/8x4 1/2	331	6.7	270	145-3200	Cla 250V	5	Tim L340	HFd	H	5.99-8.73
(c.o.e.) DC-503	108	.....	29000	▲9150	11/22.5	12/22.5	Own OH170■	6-4 1/8x4 1/2	331	7.5	297	170-3400	Spi 3152	5	Tim QT340	HFd	H	6.00-9.01
..... D-600	134	.....	29000	▲8530	11/22.5	12/24.5	Own OV207▼	8-3 7/8x4 1/2	390	7.3	354	207-3400	Fu 5A65	5	Tim QT140♦	HF	H	5.28-7.8
..... D-601	134	.....	31000	▲8530	11/22.5	12/24.5	Own OV207▼	8-3 7/8x4 1/2	390	7.3	354	207-3400	Fu 5A65	5	Tim QT140♦	HF	H	5.28-7.8
..... D-602	134	.....	31000	▲8545	11/22.5	12/24.5	Own OV207▼	8-3 7/8x4 1/2	390	7.3	354	207-3400	Fu 5A65	5	Tim QT140♦	HF	H	5.28-7.8
..... D-603	134	.....	29000	▲9060	11/22.5	12/24.5	Own OV207▼	8-3 7/8x4 1/2	390	7.3	354	207-3400	Fu 5A65	5	Tim QT340	HFd	H	5.63-9.01
DC-603	108	.....	29000	▲9535	11/22.5	12/24.5	Own OV207▼	8-3 7/8x4 1/2	390	7.3	354	207-3400	Fu R46	8	Tim QT140♦	HF	H	5.28-7.8
(c.o.e.) D-700	134	.....	31000	▲8690	11/22.5	12/24.5	Own OV207▼	8-3 7/8x4 1/2	390	7.3	354	207-3400	Fu 5A65	5	Tim R140♦	HF	H	5.28-7.4
..... D-701	134	.....	33000	▲8690	11/22.5	12/24.5	Own OV207▼	8-3 7/8x4 1/2	390	7.3	354	207-3400	Fu 5A65	5	Tim R140♦	HF	H	5.28-7.4
..... D-702	134	.....	33000	▲8705	11/22.5	12/24.5	Own OV207▼	8-3 7/8x4 1/2	390	7.3	354	207-3400	Fu 5A65	5	Tim R140♦	HF	H	5.28-7.4
..... D-703	134	.....	31000	▲9355	11/22.5	12/24.5	Own OV207▼	8-3 7/8x4 1/2	390	7.3	354	207-3400	Fu 5A65	5	Tim RT340	HFd	H	5.62-8.83
(D) D-703D	134	200	31000	▲11245	10.00/20	11.00/22	Cum NH180[1]	6-4 7/8x6	672	15.5	504	180-2100	Spi 6453A	5	Tim R300	HFd	H	4.77-8.38
(D) E-700D	159 1/2	.....	31000	▲10620	11/22.5	11.00/24	Cum NH180[2]	6-4 7/8x6	672	15.5	504	180-2100	Spi 6453A	5	Tim R140	HF	R	4.11-6.83
(D) E-702D	159 1/2	.....	33000	▲10670	11/22.5	11.00/24	Cum NH180[2]	6-4 7/8x6	672	15.5	504	180-2100	Spi 6453A	5	Tim R140	HF	R	4.11-6.83
(D) E-703D	159 1/2	.....	31000	▲11060	11/22.5	11.00/24	Cum NH180[2]	6-4 7/8x6	672	15.5	504	180-2100	Spi 6453A	5	Tim R140	HF	R	4.11-6.83
(c.o.e.) DC-703	108	.....	31000	▲9830	11/22.5	12/24.5	Own OV207▼	8-3 7/8x4 1/2	390	7.3	354	207-3400	Fu R46	8	Tim R140♦	HF	H	5.28-7.40
(D) (c.o.e.) DCL-703D	115	180	33000	▲11385	10.00/20	11.00/20	Cum NH180[2]	6-4 7/8x6	672	15.5	504	180-2100	Spi 6453A	5	Eat 19503	SF	R	4.33-8.36
(D) D-633D	144	228	42000	▲13755	9.00/20	10.00/22	Cum NH180[1]	6-4 7/8x6	672	15.5	504	180-2100	Spi 6453A	5	Tim SLHD	HF	T	4.11-6.16
(D) (c.o.e.) DCL-633D	144	204	43000	▲13815	9.00/20	10.00/22	Cum NH180[3]	6-4 7/8x6	672	15.5	504	180-2100	Spi 6453A	5	Tim SLHD	HF	T	4.11-6.16
(D) D-733D	146	228	46000	▲14725	10.00/20	11.00/22	Cum NH180[1]	6-4 7/8x6	672	15.5	504	180-2100	Spi 6453A	5	Eat 38DS	SF	T	4.87-7.17
(D) (c.o.e.) DCL-733D	144	204	48000	▲14800	10.00/20	11.00/20	Cum NH180[3]	6-4 7/8x6	672	15.5	504	180-2100	Spi 6453A	5	Eat 38DS	SF	T	4.87-6.14
(Sch. Bus) C-270L	187	187	19500	5870	8.22.5	9/22.5	Own OA110	6-3 5/8x4 1/2	255	6.7	194	110-3400	WG T98A	4	Tim F140♦	HF	H	6.8 -7.2
(Sch. Bus) C-270G	219	219	20500	6200	9/22.5	10/22.5	Own OA110	6-3 7/8x4 1/2	255	6.7	194	110-3400	WG T98A	4	Tim F140♦	HF	H	6.8 -7.2
(Sch. Bus) C-270H	238	238	20500	6335	9/22.5	10/22.5	Own OA110	6-3 5/8x4 1/2	255	6.7	194	110-3400	WG T98A	4	Tim F140♦	HF	H	6.8 -7.2
(Sch. Bus) C-270J	256	256	20500	6450	9/22.5	10/22.5	Own OA110	6-3 5/8x4 1/2	255	6.7	194	110-3400	WG T98A	4	Tim F140♦	HF	H	6.8 -7.2
(Sch. Bus) C-370H	238	238	22000	6730	9/22.5	11/22.5	Own OA130	6-3 7/8x4 1/2	292	6.9	230	130-3300	Cla 250V	5	Tim H140♦	HF	H	6.8 -7.2
(Sch. Bus) C-370J	256	256	22000	6845	9/22.5	11/22.5	Own OA130	6-3 7/8x4 1/2	292	6.9	230	130-3300	Cla 250V	5	Tim H140♦	HF	H	6.8 -7.2
(Sch. Bus) C-470H	238	.....	23500	6985	10/22.5	11/22.5	Own OA130	6-3 7/8x4 1/2	292	6.9	230	130-3300	Cla 250V	5	Tim L140♦	HF	H	6.83-7.2
(Sch. Bus) C-470J	256	.....	23500	6985	10/22.5	11/22.5	Own OA130	6-3 7/8x4 1/2	292	6.9	230	130-3300	Cla 250V	5	Tim L140♦	HF	H	6.83-7.2
(Sch. Bus) A-375	168	208	26000	7105	11/22.5	11/22.5	Own OA145	6-4 1/8x4 1/2	331	6.7	270	145-3200	Cla 250V	5	Tim H140♦	HF	H	6.8 -7.2
(Sch. Bus) A-475	168	208	28000	7240	11/22.5	11/22.5	Own OA145	6-4 1/8x4 1/2	331	6.7	270	145-3200	Cla 250V	5	Tim L140♦	HF	H	6.8 -7.2

For References and Abbreviations, see page 133

For Directory of the Truck Manufacturers listed above, see page 53

1961 TRUCK SPECIFICATIONS—*Continued*

MAKE AND MODEL	WHEEL-BASE: Minimum Standard	WHEEL-BASE: Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES (D-dual rear S-single rear): Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	TRANSMISSION: Make and Model	Forward Speeds	REAR AXLE: Make and Model	Gear and Type	Drive and Torque	Gear Ratio Range in High
Reo—Cont'd																		
(Sch. Bus) C-378	170	225	26000	7565	10-22.5	11-22.5	Own OA145	6-4½x4½	331	6.7	270	145-3200	Cla 250V	5	Tim H140	HF	H	6.16-7.2
(Sch. Bus) C-478	170	225	28000	7670	10-22.5	11-22.5	Own OA145	6-4½x4½	331	6.7	270	145-3200	Cla 250V	5	Tim L140	HF	H	6.16-7.2
(Sch. Bus) C-578	170	225	31000	7790	10-22.5	11-22.5	Own OA145	6-4½x4½	331	6.7	270	145-3200	Cla 250V	5	Tim OT140	HF	H	6.16-7.8
(Sch. Bus) D-478	170	225	28000	8300	10-22.5	12-22.5	Own OV207	8-3⅞x4½	390	7.3	354	207-3400	Spi 6352	5	Tim L140	HF	H	5.29-7.2
(Sch. Bus) D-678	170	225	31000	8600	10-22.5	12-22.5	Own OV207	8-3⅞x4½	390	7.3	354	207-3400	Spi 6352	5	Tim QT140	HF	H	5.28-7.20
Studebaker 6E5	112	122	5000	2485	6.70-15S	6.50/16S	Own 1E	6-3x4	170	8.0	156	110-4500	WG T90B	3	Spi 2211	H		4.27-4.55
6E7	112	122	5200	2770	6.70-15S	6.50-16S	Own 3E	8-3⅜x3½	259	7.5	250	180-4500	WG T89C	3	Spi 2211	H		3.73-4.27
6E10	122	122	7000	2935	7.00-16S	7.00-16S	Own 1E	6-3x4	170	8.0	156	110-4500	WG T90B	3	Spi 60	HF		4.56-4.88
6E12	122	122	7000	3020	7.60-16S	7.00-16S	Own 3E	8-3⅜x3½	259	7.5	250	180-4500	WG T98C	3	Spi 60	HF		4.10-4.88
6E13	131	131	10000	3360	8/17.5S	8/17.5S	Own 3E	8-3⅜x3½	259	7.5	250	180-4500	WG T98A	4	Tim B140	HF		** -5.14
6E28	131	171	15000	3905	8/19.5S	8/19.5S	Own 3E	8-3⅜x3½	259	7.5	250	180-4500	WG T98A	4	Tim E102	HF		5.29-6.20
6E40	131	195	19500	5315	8.25/20	8.25/20	Own 4E	8-3⅞x3⅝	289	7.5	300	210-4500	NP 420	4	Tim F146	HF		6.20-7.20
6E40HD	131	195	23000	5805	8.25/20	8.25/20	Own 4E	8-3⅞x3⅝	289	7.5	300	210-4500	NP 420	4	Tim 6316	HF		6.80-7.20
Ward-La France G-310-S	142	190	31000	9702	10.00/20		Con T6427	6-4⅛x4¾	427	6.4	350	170-3000	Ful 5A43	5	Tim QT140	H	R	** -6.83
G-340-S	142	190	34000	10400	11.00/22		Con U6501	6-4½x5¼	501	6.1	412	178-2600	Ful 5A62	5	Tim R140	H	R	** -6.83
G-400-S	142	190	40000	11460	11.00/22		Con R6602	6-4¾x5⅝	602	6.2	484	232-2800	Ful 5A62	5	Tim U200	2H	R	** 7.20
(D) D-310-S	142	199	31000	9702	10.00/20		Cum C-160	6-4⅞x5	464	15.8	376	160-2500	Ful 5A62	5	Tim QT-140	H	R	** -6.83
(D) D-340-S	142	199	34000	10400	11.00/22		Cum HRF6B	6-5½x6	743	15.5	580	190-2000	Ful 5C74	5	Tim R-140	H	R	** -6.83
(D) D-400-S	142	199	40000	11460	11.00/22		Cum NH220	6-5½x6	743	15.5	606	220-2100	Ful 5W74	5	Tim U-200	2H	R	** -7.20
Four-Wheel Drive																		
Coleman (D) D55RECP2A	135	145	50000		14.00-20S	14.00-20S	Cum NH220	6-5½x6	743	15.5	606	220-2100	All TG602	3	Own R17	2		** -5.91
(D) D55RECP2C	135	145	50000		14.00-20S	14.00-20S	Cum NH220	6-5½x6	743	15.5	606	220-2100	Cla 610ED	9	Own R17	2		** -5.91
(D) D55RECP4A	135	145	40000		14.00-20S	14.00-20S	Cum NH220	6-5½x6	743	15.5	606	220-2100	All TG602	3	Own 17HD	2		** -5.91
(D) D55RECP4C	135	145	40000		14.00-20S	14.00-20S	Cum NH220	6-5½x6	743	15.5	606	220-2100	Cla 610ED	9	Own 17HD	2		** -5.91
(D) D55RECC2A	135	145	50000		14.00-20S	14.00-20S	Cum NH220	6-5½x6	743	15.5	606	220-2100	All TG602	3	Own R17	2		** -5.91
(D) D55RECC2C	135	145	50000		14.00-20S	14.00-20S	Cum NH220	6-5½x6	743	15.5	606	220-2100	Cla 610ED	9	Own R17	2		** -5.91
(D) D55RECC4A	135	145	40000		14.00-20S	14.00-20S	Cum NH220	6-5½x6	743	15.5	606	220-2100	All TG602	3	Own 17HD	2		** -5.91
(D) D55RECC4C	135	145	40000		14.00-20S	14.00-20S	Cum NH220	6-5½x6	743	15.5	606	220-2100	Cla 610ED	9	Own 17HD	2		** -5.91
D55CE	150		36000		12.00-20D	12.00-20	Cum NH195	6-4½x6	672	15.5	535	195-2100	Fu R63	10	Own R17	2		** -6.67
G55RECP2A	135	145	50000		14.00-20S	14.00-20S	Wau 145GKB	6-5½x6	779	6.2	590	238-2400	All TG602	3	Own R17	2		** -5.91
G55RECP2C	135	145	50000		14.00-20S	14.00-20S	Wau 145GKB	6-5½x6	779	6.2	590	238-2400	Cla 610ED	9	Own R17	2		** -5.91
G55RECP4A	135	145	40000		14.00-20S	14.00-20S	Wau 145GKB	6-5½x6	779	6.2	590	238-2400	All TG602	3	Own 17HD	2		** -5.91
G55RECP4C	135	145	40000		14.00-20S	14.00-20S	Wau 145GKB	6-5½x6	779	6.2	590	238-2400	Cla 610ED	9	Own 17HD	2		** -5.91
G55RECC2A	135	145	50000		14.00-20S	14.00-20S	Wau 145GKB	6-5½x6	779	6.2	590	238-2400	All TG602	3	Own R17	2		** -5.91
G55RECC2C	135	145	50000		14.00-20S	14.00-20S	Wau 145GKB	6-5½x6	779	6.2	590	238-2400	Cla 610ED	9	Own R17	2		** -5.91
G55RECC4A	135	145	40000		14.00-20S	14.00-20S	Wau 145GKB	6-5½x6	779	6.2	590	238-2400	All TG602	3	Own 17HD	2		** -5.91
G55RECC4C	135	145	40000		14.00-20S	14.00-20S	Wau 145GKB	6-5½x6	779	6.2	590	238-2400	Cla 610ED	9	Own 17HD	2		** -5.91
G55CE	150		36000		12.00-20D	12.00-20	Wau 145GKB	6-5½x6	779	6.2	590	238-2400	Fu R63	10	Own R17	2		** -5.91
LP57A	170		25000		10.00-20S	11.00-20S	Ford 534	8-4⅛x4⅛	534	7.5	482	252-2600	Spi 6352	5	Tim R140	2		** -7.40
(D) D55CS	150		34000		11.00-20S	12.00-20S	Cum H6	6-4⅞x6	672	16.6	512	160-1800	Fu R63	10	Tim R140	2		** -7.40
Dodge R6-W100	114	114	6000	3295	6.50-16S	7/17.5S	Own	6-3.40x4.13	225	8.2	215	140-3900	Own A745[12]	3	Spi 60	Hy	H	4.10-4.88
R8-W100	114	114	6000	3435	6.50-16S	7/17.5S	Own	8-3.91x3.31	318	8.3	286	200-3900	Own A745[12]	3	Spi 60	Hy	H	4.10-4.88
R6-W200	122	122	8000	3335	7/17.5S	8/19.5S	Own	6-3.40x4.13	225	8.2	215	140-3900	Own A745[12]	3	Spi 60	Hy	H	4.10-4.88
R8-W200	122	122	8000	3475	7/17.5S	8/19.5S	Own	8-3.91x3.31	318	8.3	286	200-3900	Own A745[12]	3	Spi 60	Hy	H	4.10-4.88
R6-W300M	126	126	9500	4600	9.00-16S	9.00-16S	Own	6-3.44x4.50	251	7.1	216	125-3600	NP 420	4	Own R65	Hy	H	** -5.83
R6-W300	133	133	10000	4025	8-19.5S	7.50-16D	Own	6-3.44x4.50	251	7.1	216	125-3600	NP 420	4	Spi 70	Hy	H	4.88-5.87
R8-W300	133	133	10000	4135	8-19.5S	7.50-16	Own	8-3.91x3.31	318	8.3	288	202-3900	NP 420	4	Spi 70	Hy	H	4.88-5.87
R6-W500	157	175	20000	5235	8.25/20	8.25/20	Own	6-3.44x4.50	251	7.1	216	125-3600	NP 420	4	Tim H141	Hy	H	** -6.80
R8-W500	157	175	20000	5345	8.25/20	8.25/20	Own	8-3.91x3.31	318	8.3	288	202-3900	NP 420	4	Tim H141	Hy	H	** -6.80
Dunlex L-6602-4	148	220	40000	*13300	11.00/20	12.00/20	Con R6602	6-4¾x5¼	602	6.1	465	200-2600	Fu 5C650	5	Tim 1758	2F	H	** -8.15
(D) LC-600-4	148	220	40000	*14550	11.00/20	12.00/20	Cum HR6B	6-5½x6	743	16.0	540	165-1800	Fu 5C650	8	Tim 1758	2F	H	** -8.15
Fabco (c) FD201B	130	172	19000	5700	7.50/20	8.25/20	Ford	8-3.5x3.1	239	7.5	215	132-4200	Ford*	10	Ford	HF	H	** -6.8
(c) FD201B	130	172	19000	5700	7.50/20	8.25/20	Ford	8-3.6x3.1	256	7.5	228	140-3900	Ford*	10	Ford	HF	H	** -6.8
(c) FD251B	130	172	27000	7500	8.25/20	9.00/20	Ford	8-3.8x3.5	317	7.2	286	170-3900	Ford*	10	Ford	SF	H	7.17-7.67
(c) FD302B	132	192	26000	8000	10-22.5	11-22.5	Ford	8-3.8x3.6	332	7.6	328	212-3800	Ford*	10	Eat 1790	SF	H	** -7.17
Ford F-100 (4x4)	120	120	5600	2870	6.70-15S	7/17.5S	Own EBR*	6-3.62x3.60	223	8.4	200	135-4000	Own*	3	Own 3300*	H½	H	3.89*
F-250 (4x4)	120	120	7400	3165	6.50-16S	8/19.5S	Own EBR*	6-3.62x3.60	223	8.4	200	135-4000	Own*	3	Spi 60	HF	H	**-4.56
FWD *170	142	215	17000	7200	7.50-20D	10.00-20S	Int BD240	6-3⅞x4¼	241	7.5	224	141-3800	WG T9	4	Own 23L	SF	H	4.86-8.98
*191	142	215	20000	7620	8.25-20D	10.00-20S	Int BD264	6-3½x4½	264	7.5	248	153-3800	Int T31	5	Own 23L	SF	H	4.86-8.98
*192	142	215	20000	7680	8.25-20D	10.00-20S	Int BD308	6-3½x4½	308	6.5	286	154-3600	Int T31	5	Own 23L	SF	H	4.86-8.98
*286	142	202	28000	8890	10.00-20D	11.00-20	Int RD450	6-4⅜x5	451	6.5	388	182-3000	Int T62	5	Own 23	SF	H	4.86-8.98
(D) *325D	142	231	32000	11990	11.00-20D	13.00-20S	Cum JT6B	6-4½x5	401	16.3	407	175-2500	Ful 5C65	5	Own 33A	SF	H	4.18-12.2
*232	142	202	23000	8100	9.00-20D	10.00-20	Int BD308	6-3½x4½	308	6.5	286	154-3600	Int T31	5	Own 23	SF	H	4.86-8.98
(D) *233D	142	202	23000	9000	9.00-20D	10.00-20	GM 3-71	3-4½x5	213	16.0	277	102-2100	Ful 5A430	5	Own 23	SF	H	4.86-8.98
*284	142	202	28000	8850	10.00-20D	11.00-20	Int RD372	6-4⅜x4½	372	6.5	308	165-3200	Int T51	5	Own 23	SF	H	4.86-8.98
(D) *284D	142	202	28000	9800	10.00-20D	11.00-20	GM 4-71	4-4½x5	284	17.0	375	150-2300	Ful 5C650	5	Own 23	SF	H	4.86-8.98
*285	142	202	28000	8860	10.00-20D	11.00-20	Int RD406	6-4⅝x4½	406	6.5	338	175-3200	Int T51	5	Own 23	SF	H	4.86-8.98
(D) *285D	142	202	28000	9750	10.00-20D	11.00-20	Cum JT6B	6-4½x5	401	16.3	407	175-2500	Ful 5C650	5	Own 23	SF	H	4.86-8.98
*326	142	231	32000	11405	11.00-20D	13.00-20S	Int RD450	6-4⅜x5	451	6.5	388	182-3000	Int T62	5	Own 33A	SF	H	4.18-12.2
(D) *324D	142	231	32000	12150	11.00-20D	13.00-20S	GM 4-71	4-4½x5	284	17.0	375	150-2300	Ful 5C650	5	Own 33A	SF	H	4.18-12.2
(D) 327D	142	231	32000	12930	11.00-20D	13.00-20S	Cum HR6B	6-5½x6	743	15.5	550	175-1800	Ful 5C720	5	Own 33A	SF	H	4.18-12.2
*367	142	231	36000	11600	11.00-20D	13.00-20S	Int RD501	6-4⅝x5¼	501	6.5	444	212-3000	Int T72	5	Own 33	SF	H	4.85-14.1
(D) 368D	142	211	36000	13100	11.00-20D	13.00-20S	Cum HRF6B	6-5½x6	743	15.5	580	190-2000	Ful 5C720	5	Own 33	SF	H	4.85-14.1
408	142	211	40000	13900	12.00-20D	14.00-20S	Wau 145GZ	6-5⅛x6	817	7.2	630	255-2400	Ful 10A1120	10	Own33	SF	H	5.71-8.53
(D) 406D	142	211	40000	14630	12.00-20D	14.00-20S	GM 6-71	6-4¼x5	426	16.0	570	227-2250	Ful 10A1120	10	Own 33	SF	H	5.71-8.53
(D) 409D	142	211	40000	14800	12.00-20D	14.00-20S	Cum NH220	6-5½x6	743	15.5	607	220-2100	Ful 10A1120	10	Own 33	SF	H	5.71-8.53
*327	142	231	32000	11450	11.00-20D	13.00-20S	Int RD501	6-4⅝x5¼	501	6.5	444	212-3000	Int T72	5	Own 33A	SF	H	4.18-12.2
Marmon-Herr. F1504	132	156	17000		7/22.5D	8/22.5	Ford EBR	6-3.62x3.60	223	8.4	200	135-4000	Ford		Ford			
F1504	132	156	17000		7/22.5D	8/22.5	Ford EEJ	8-3.75x3.30	292	8.0	270	160-4000	Ford		Ford			
F1604	132	194	21000		8/22.5D	10/22.5	Ford EBR	6-3.62x3.60	223	8.4	200	135-4000	Ford		Ford	HF		
F1604	132	194	21000		8/22.5D	10/22.5	Ford	6-	262				Ford		Ford	HF		
F1604	132	194	21000		8/22.5D	10/22.5	Ford	8-3.75x3.30	292	8.0	270	160-4000	Ford		Ford	HF		

For References and Abbreviations, see page 133

For Directory of the Truck Manufacturers listed above, see page 53

1961 TRUCK SPECIFICATIONS—*Continued*

MAKE AND MODEL	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES (D-dual rear S-single rear) Standard Front and Rear	TIRE SIZES Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	TRANSMISSION Make and Model	Forward Speeds	REAR AXLE Make and Model	Gear and Type	Drive and Torque	Gear Ratio Range in High
Four-Wheel Drive—Cont'd																		
Marmon-Herr.—Cont'd																		
F1704	132	212	22500	.....	9/22.5D	10/22.5	Ford EEJ	8-3.75x3.30	292	8.0	270	160-4000	Ford	...	Ford	HF	...	.....
F1704	132	212	22500	.....	9/22.5D	10/22.5	Ford ECS	8-3.68x3.72	302	7.5	280	187-3800	Ford	...	Ford	HF	...	.....
F1754	134	212	26000	.....	9/22.5D	10/22.5	Ford ECT	8-3.80x3.66	332	7.5	307	200-3800	Ford	...	Ford	HF	...	.....
F1804	134	212	27000	.....	10/22.5D	11/22.5	Ford ECT	8-3.80x3.66	332	7.5	307	200-3800	Ford	...	Ford	HF	...	.....
F1854	146	212	28000	.....	10/22.5D	11/22.5	Ford EDL	8-4.12x3.75	401	7.5	343	226-3600	Ford	...	Ford	HF	...	.....
F1954	146	212	30000	.....	12/22.5D	12/22.5	Ford EDL	8-4.12x3.75	401	7.5	343	226-3600	Ford	...	Ford	HF	...	.....
F11004	146	212	32000	.....	12/22.5D	12/22.5	Ford EDM	8-4.50x3.75	477	7.5	415	253-3400	Ford	...	Ford	HF	...	.....
C1704	135	175	22500	.....	9/22.5D	10/22.5	Ford EEJ	8-3.75x3.30	292	8.0	270	160-4000	Ford	...	Ford	HF	...	.....
C1754	135	175	24000	.....	9/22.5D	10/22.5	Ford	8	320	...	...	.....	Ford	...	Ford	HF	...	.....
C1804	135	175	26000	.....	10/22.5D	11/22.5	Ford ECT	8-3.80x3.66	332	7.5	307	200-3800	Ford	...	Ford	HF	...	.....
C1854	135	175	28000	.....	10/22.5D	11/22.5	Ford EDL	8-4.12x3.75	401	7.5	343	226-3600	Ford	...	Ford	HF	...	.....
C1954	135	175	30000	.....	12/22.5D	12/22.5	Ford EDL	8-4.12x3.75	401	7.5	343	226-3600	Ford	...	Ford	HF	...	.....
C11004	135	175	32000	.....	12/22.5D	12/22.5	Ford EDM	8-4.50x3.75	477	7.5	415	253-3400	Ford	...	Ford	HF	...	.....
Oshkosh W-216	152	...	23600	8915	10/22.5	.....	Int RD406	6-4⅜x4½	406	...	338	175-3200	Own MT216	5	Own R216	SF	...	.....
W-214	150	...	24000	9025	10/22.5	.....	Con T6427	6-4⅞x4⅞	427	...	342	170-3000	Own MT314	5	Own R314	SF	...	.....
W-314	150	...	28000	9950	10.00/20	.....	Con T6427	6-4⅞x4⅞	427	...	342	170-3000	Own MT214	5	Own R214	SF	...	.....
W-316	152	...	28000	9310	10/22.5	.....	Int RD406	6-4⅜x4½	406	...	338	175-3200	Own MT316	5	Own R316	SF	...	.....
(D) W-316-D	152	...	28000	9520	10/22.5	.....	Cum JN6B	6-4½x5	401	...	295	130-2500	Own MT316	5	Own R316	SF	...	.....
W-414	150	...	30000	10150	10.00/20	.....	Con T6427	6-4⅞x4⅞	427	...	342	170-3000	Own MT414	5	Own R414	SF	...	.....
W-416	152	...	30000	10060	11/22.5	.....	Int RD406	6-4⅜x4½	406	...	338	175-3200	Own MT416	5	Own R416	SF	...	.....
(D) W-514-D	150	...	30000	10060	10.00/20	.....	Cum JT6B	6-4½x5	401	...	407	175-2500	Own MT514	5	Own R514	SF	...	.....
(D) W-515-D	150	...	34000	12800	11.00/20	.....	Cum JT6B	6-4½x5	401	...	407	175-2500	Own MT514	5	Own R515	SF	...	.....
W-516	152	...	32000	10740	12/22.5	.....	Int RD450	6-4⅝x5	450	...	388	182-3000	Own MT516	5	Own R516	SF	...	.....
W-516-DR	152	...	32000	11140	12/22.5	.....	Int RD501	6-4½x5½	501	...	444	212-3000	Own MT516	5	Own R516DR	2F	...	.....
W-614	150	...	32000	12200	11.00/20	.....	Con R6513	6-4½x5⅝	513	...	427	189-2600	Own MT614	5	Own R614	SF	...	.....
W-616	152	...	36000	11180	12/22.5	.....	Int RD501	6-4½x5½	501	...	444	212-3000	Own MT616	5	Own R616	SF	...	.....
W-616-DR	152	...	36000	11380	12/22.5	.....	Int RD501	6-4½x5½	501	...	444	212-3000	Own MT616	5	Own R616DR	2F	...	.....
W-814	150	...	36000	12600	11.00/20	.....	Con R6572	6-4¾x5⅝	572	...	464	210-2600	Own MT814	5	Own R814	SF	...	.....
W-824	150	...	36000	12800	11.00/20	.....	Con R6572	6-4¾x5⅝	572	...	464	210-2600	Own MT814	5	Own R824	2F	...	.....
W-815	150	...	36000	12600	11.00/20	.....	Con R6602	6-4⅞x5⅝	602	...	484	218-2600	Own MT815	5	Own R815	SF	...	.....
W-825	150	...	36000	12800	11.00/20	.....	Con R6602	6-4⅞x5⅝	602	...	484	218-2600	Own MT815	5	Own R825	2F	...	.....
(D) W-816	150	...	36000	14100	12.00/20	.....	Cum H6B	6-4⅞x6	672	...	512	160-1800	Own MT816	5	Own R816	SF	...	.....
(D) W-826	150	...	36000	14300	12.00/20	.....	Cum H6B	6-4⅞x6	672	...	512	160-1800	Own MT816	5	Own R826	2F	...	.....
(D) W-817	158	...	40000	14400	12.00/20	.....	Cum HRF6B	6-5¼x6	743	...	580	190-2000	Own MT817	5	Own R817	SF	...	.....
(D) W-827	158	...	40000	14600	12.00/20	.....	Cum HRF6B	6-5¼x6	743	...	580	190-2000	Own MT817	5	Own R827	2F	...	.....
(D) WB-906	160	...	42000	16000	13.00/20	.....	Cum HRF6B	6-5¼x6	743	...	580	190-2000	Own MT906	12	Own R906	2F	...	.....
(D) WC-906	160	...	42000	16400	13.00/20	.....	Cum NH220	6-5¼x6	743	...	606	220-2100	Own MT906	12	Own R906	2F	...	.....
WA-2206	160	...	54000	19000	13.00/24	.....	HS 6182G1	6-5¾x7	1091	...	960	332-2200	Own MT2206	10	Own R2206	2F	...	.....
(D) WA-2208	160	...	44000	17500	13.00/20	.....	Cum NH220	6-5¼x6	743	...	606	220-2100	Own MT2208	12	Own R2208	2F	...	.....
(D) W-2209	160	...	54000	19500	13.00/24	.....	Cum NHRS6B	6-5¼x6	743	...	865	320-2100	Own MT2209	10	Own R2209	2F	...	.....
W-2211	160	...	44000	16500	13.00/24	.....	Wau 145GZ	6-5⅝x6	817	...	630	241-2200	Own MT2211	12	Own R2211	2F	...	.....
W-1700-15C	160	...	34000	12300	12.00/20	.....	Con R6513	6-4½x5⅝	513	...	427	189-2600	Own MT1700	10	Own R1700	SF	...	.....
W-1700-15CR	160	...	34000	12300	12.00/20	.....	Con R6513	6-4½x5⅝	513	...	427	189-2600	Own MT1700	10	Own R1700DR	2F	...	.....
50-50	122	...	36000	10600	10.00/20†	.....	Int RD450	6-4⅝x5	450	...	388	182-3000	Own MT50	5	Own R50	SF	...	.....
45-55	122	...	42000	11900	11.00/24†	.....	Con T6427	6-4⅞x4⅞	427	...	342	169–	Own MT55	10	Own R55	2F	...	.....
(D) 45-55-JT	122	...	42000	12800	11.00/24†	.....	Cum JT6B	6-4½x5	401	...	407	175-2500	Own MT55	10	Own R55	2F	...	.....
(D) W-2100-M	160	...	42000	16000	13.00/20	.....	Cum HRF6B	6-5¼x6	743	...	580	190-2000	Own MT2100	12	Own R2100	2F	...	.....
W-2206-M	160	...	62000	21000	14.00/24	.....	HS 6182B1	6-5¾x7	1091	...	1070	356-2200	Own MT2206	10	Own R2206M	2F	...	.....
(D) W-2209-M	160	...	62000	21500	14.00/24	.....	Cum NHRS6B	6-5¼x6	743	...	865	320-2100	Own MT2209	10	Own R2209M	2F	...	.....
(D) W-2500	...	...	90000	31500	16.00/25	.....	Cum NHRS6B	6-5¼x6	743	...	865	320-2100	All TG602	3	Own R2500	2F	...	.....
W-2501	...	...	90000	31500	16.00/25	.....	HS 6182B1	6-5¾x7	1091	...	1070	356-2200	All TG602	3	Own R2500	2F	...	.....
(D) W-2800	...	...	120000	...	18.00/25	.....	Cum NHRS6B	6-5¼x6	743	...	865	320-2100	All TG602	3	Own R2800	PF	...	.....
W-2801	...	...	120000	...	18.00/25	.....	HS 6182B1	6-5¾x7	1091	...	1070	356-2200	All TG602	3	Own R2800	PF	...	.....
Studebaker 6E13D	131	±31	9460	4125	8/19.5S	8/19.5S	Own 3E	8-3⅛x3¼	259	7.5	250	180-4500	WG T98A	4	Tim B140	HF	...	** -5.14
Walter (c.f.) FYM	126	150	24000	9000	12.00/20S	.....	Wau 135GZB	6-4⅝x5	451	6.3	350	150-2600	Own FJN	6	Own MS	2	H	** -8.00
(c.f.) FFK	126	150	32000	12000	11.00/24D	.....	Ford N	6-4⅛x4¼	534	7.5	492	250-2800	Own FC	6	Own FCC	2	H	** -9.00
(c.f.) AEB	126	150	36000	13000	12.00/24S	.....	Wau 140GZ	6-4⅝x5½	554	6.2	473	200-2800	Own FC	6	Own FCSC	2	H	** -9.00
(c.f.) AGB	138	162	36000	14000	12.00/24S	.....	Wau 145GKB	6-5¼x6	779	6.2	585	240-2400	Own FA	6	Own FCSC	2	H	** -9.00
(c.f.) AGR	138	162	42000	15000	12.00/24D	.....	Wau 145GKB	6-5¼x6	779	6.2	585	240-2400	Own FA	6	Own FCR	2	H	** -9.00
Willys F4-134-4x4	104½	104½	4500	1850	7.00/15S	7.50/16S	Own	4-3½x4⅜	134	6.9	114	72-4000	WG T90C	3	Spi 44	H1½	H	** -5.38
F4-134-4x2	104½	104½	4500	1701	6.70/15S	7.50/16S	Own	4-3½x4⅜	134	7.4	114	75-4000	WG T96*	3	Spi 44	H1½	H	4.89 5.38
F4-134-4WD	118	118	6000	2016	7.00/16S	7.50/16S	Own	4-3½x4⅜	134	6.9	114	72-4000	WG T90C	3	Spi 53-2	H1½	H	** 5.38
L6-226-4x4	104½	104½	4500	1963	7.00/15S	7.50/16S	Own	6-3⅛x4⅜	226	6.9	190	105-3600	WG T90J	3	Spi 44	H1½	H	4.27 5.38
L6-226-4x2	104½	104½	4500	1814	6.70/15S	7.50/16S	Own	6-3⅛x4⅜	226	6.9	190	105-3600	WG T86E*	3	Spi 44	H1½	H	4.27 5.38
L6-226-4WD	118	118	6000	2127	7.00/16S	7.50/16S	Own	6-3⅛x4⅜	226	6.9	190	105-3600	WG T90J	3	Spi 53	H1½	H	4.27 5.38
CJ-3B	80⅞	80½	3500	1725	6.00/16S	7.00/16S	Own	4-3½x4⅜	134	6.9	114	72-4000	WG T90C	3	Spi 44-2	H1½	H	** -5.38
CJ-5	81	81	3750	1756	6.00/16S	7.00/16S	Own	4-3½x4⅜	134	6.9	114	72-4000	WG T90C	3	Spi 44-2	H1½	H	** -5.38
CJ-6	101	101	3900	1805	6.00/16S	7.00/16S	Own	4-3½x4⅜	134	6.9	114	72-4000	WG T90C	3	Spi 44-2	H1½	H	** -5.38
DJ-3A	80⅞	80⅞	2600	1352	6.50/15S	6.50/15S	Own	4-3½x4⅜	134	6.5	105	60-4000	WG T98	3	Spi 27	H1½	H	** -4.56
FC-150	81	81	5000	2087	7.00/15S	7.00/16S	Own	4-3½x4⅜	134	6.9	114	72-4000	WG T90A	3	Spi 44-1	H1½	H	** 5.38
FC-170	103⅝	103½	7000	2168	7.00/16S	7.00/16S	Own	6-3⅛x4⅜	226	6.9	190	105-3600	WG T90A	3	Spi 53	H1½	H	** -4.88
FC-170	103⅝	103½	8000	2828	7.00/16D	7.00/16	Own	6-3⅛x4⅜	226	6.9	190	105-3600	WG T90A	3	Spi 70	HF	H	** -4.88
FC-170	103⅝	103½	9000	2925	7.00/16D	7.00/16	Own	6-3⅛x4⅜	226	9.9	190	105-3600	WG T98A	4	Spi 70	HF	H	** -4.88
Six-Wheelers																		
Dodge (t.c.f.) R8-CT700	134	212	39000	*9465	8.25/20	9.00/20	Own[4]	8-4.12x3.38	361	7.5	310	194-3600	NP 541[20]	5	Tim SDHD*	Hy	T	** -6.80
(t.c.f.) R8-CT800	134	212	45000	*9550	8.25/20	10.00/20	Own[5]	8-4.12x3.38	361	7.5	335	204-3600	NP 541[20]	5	Eat 30DS*	S	T	6.50-7.17
(t.c.f.) R8-CT900	134	212	53000	*11090	10.00/20	11.00/20	Own[6]	8-4.19x3.75	413	7.5	373	217-3600	Cla 301V[21]	5	Tim SQHD	Hy	T	6.83-7.80
(D)(t.c.f.) R8-KCT800	134	200	45000	*11600	8.25/20	10./20	Cum	6-4.43x5.00	464	14.5	406	175-2500	Cla 301V[21]	5	Eat 30DS*	S	T	4.88-6.50
(D)(t.c.f.) R8-KCT900	134	200	53000	*12275	10.00/20	11.00/20	Cum	6-4.43x5.00	464	14.5	406	175-2500	Cla 301V[21]	5	Tim SQHD	Hy	T	4.11-6.17
(D)(t.c.f.) R8-NCT800	146	200	45000	*11725	8.25/20	9.00/20	Cum[8]	6-4.88x6.00	672	14.6	504	180-2100	Spi 6452A[22]	5	Eat 30DS*	S	T	4.88-6.50
(D)(t.c.f.) R8-NCT900	146	200	49000	*12200	9.00/20	11.00/20	Cum[7]	6-4.88x6.00	672	14.6	504	180-2100	Spi 6452A[22]	5	Tim SLHD	Hy	T	4.11-6.17
(D)(t.c.f.) R8-NCT1000	146	200	53000	*13170	10.00/20	11.00/20	Cum	6-5.12x8.00	743	15.5	605	220-2100	Spi 6452A[22]	5	Tim SQHD	Hy	T	4.11-6.17
Duplex RHF	160	208	40000	11500	10.00/20	11.00/20	Con B6427	6-4⅞x4⅞	427	6.6	325	141-2600	Fu 5A43	5	Tim SLD	2F	R	8.27-.....
(D) LF	172	208	45000	15000	11.00/20	12.00/20	Cum HR6B	6-4½x6	672	17.0	495	150-1800	Fu 5A920	5	Tim SW456	W	L	6.8 -8.15

For References and Abbreviations, see page 133

For Directory of the Truck Manufacturers listed above, see page 53

1961 TRUCK SPECIFICATIONS—*Continued*

MAKE AND MODEL	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES (D-dual rear S-single rear) Standard Front and Rear	TIRE SIZES Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	TRANSMISSION Make and Model	Forward Speeds	REAR AXLE Make and Model	Gear and Type	Drive and Torque	Gear Ratio Range in High
Six-Wheelers—Cont'd																		
Fabco (c) FD201B	130	Opt	30000	10500	8.25/20	9.00/20	Ford	8-3.5x3.1	239	7.5	215	132-4000	Ford*	10	Ford	HF	H	** -6.8
(c) FD201B	130	Opt	30000	10500	8.25/20	9.00/20	Ford	8-3.6x3.1	256	7.5	228	140-3000	Ford*	10	Ford	HF	H	** -6.8
(c) FD251B	130	Opt	40000	13000	8.25/20	9.00/20	Ford	8-3.8x3.5	317	7.2	266	170-3900	Ford*	10	Ford	SF	H	7.17-7.67
WT	150	150	30000	10600	9.00/20	9.00/20	Ford	8-3.8x3.6	332	7.6	326	212-3800	Clark**	30	Tim F105	HF	R	** -6.00
FWD 6-366	162	211	36000	12300	8.25/20D	10.00/20	Int RD450	6-4½x5	451	6.5	388	182-3000	Int T72	5	Own 6-23	SF	T	4.7 -11.5
(D) 6-384D	162	211	36000	13200	8.25/20D	10.00/20	GM 4-71	4-4¼x5	284	17.0	375	150-2300	Ful 5C65	5	Own 6-23	SF	T	4.7 -11.5
(D) 6-368D	184	211	36000	13980	8.25/20D	10.00/20	Cum HRF6B	6-5½x6	743	15.5	580	190-2000	Ful 5C72	5	Own 6-23	SF	T	4.7 -11.5
6-407	162	211	40000	12400	9.00/20D	10.00/20	Int RD501	6-4½x5½	501	6.5	444	212-3000	Int T70	5	Own 6-23	SF	T	4.7 -11.5
(D) 6-406D	184	233	40000	14250	9.00/20D	10.00/20	GM 6-71	6-4¼x5	426	16.0	570	227-2250	Ful 5C72	5	Own 6-23	SF	T	4.7 -11.5
(D) 6-409D	184	233	40000	15150	9.00/20D	10.00/20	Cum NH220	6-5½x6	743	15.5	607	220-2100	Ful 5C72	5	Own 6-23	SF	T	4.7 -11.5
6-608	192	216	60060	18090	12.00/20D	13.00/20	Wau 145GZ	6-5⅝x6	817	7.2	630	255-2400	Ful 10A1120	10	Own 6-33	SF	T	5.7 -8.59
(D) 6-606D	192	216	60000	18820	12.00/20D	13.00/20	GM 6-71	6-4¼x5	426	16.0	570	227-2250	Ful 10A1120	10	Own 6-33	SF	T	5.7 -8.59
(D) 6-609D	192	216	60000	18900	12.00/20D	13.00/20	Cum NH220	6-5½x6	743	15.5	607	220-2100	Ful 10A1120	10	Own 6-33	SF	T	5.7 -8.59
6-457	162	211	45000	13550	10.00/20D	11.00/20	Int RD501	6-4½x5½	501	6.5	444	212-3000	Int T70	5	Own 6-23	SF	T	4.7 -11.5
(D) 6-456D	184	233	45000	15270	10.00/20D	11.00/20	GM 6-71	6-4¼x5	426	16.0	570	227-2250	Ful 5C72	5	Own 6-23	SF	T	4.7 -11.5
(D) 6-459D	184	233	45000	15350	10.00/20D	11.00/20	Cum NH220	6-5½x6	743	15.5	607	220-2100	Ful 5C72	5	Own 6-23	SF	T	4.7 -11.5
6-487	162	211	48000	14000	10.00/20D	11.00/20	Int RD501	6-4½x5½	501	6.5	444	212-3000	Int T70	5	Own 6-33AR	SF	T	4.7 -11.5
(D) 6-486D	184	233	48000	15720	10.00/20D	11.00/20	GM 6-71	6-4¼x5	426	16.0	570	227-2250	Ful 5C72	5	Own 6-33AR	SF	T	4.7- 11.5
(D) 6-489D	184	233	48000	15800	10.00/20D	11.00/20	Cum NH220	6-5½x6	743	15.5	607	220-2100	Ful 5C72	5	Own 6-33AR	SF	T	4.7 -11.5
6-607	178	233	60000	16600	12.00/20D	13.00/20	Int RD501	6-4½x5½	501	6.5	444	212-3000	Ful 10FA65	10	Own 6-33	SF	T	5.7 -8.59
6-332	160	211	33000	11400	8.25/20D	9.00/20	Int BD308	6-3⅞x4½	308	6.5	286	154-3600	Int T30	5	Own 6-23L	SF	T	4.7 -11.5
6-354	160	211	35000	11500	8.25/20D	9.00/20	Int RD372	6-4⅝x4½	372	6.5	308	165-3200	Int T60	5	Own 6-23L	SF	T	4.7 -11.5
6-355	160	211	35000	11510	8.25/20D	9.00/20	Int RD406	6-4⅝x4½	406	6.5	308	175-3200	Int T60	5	Own 6-23L	SF	T	4.7 -11.5
(D) 6-385D	162	211	36000	13050	8.25/20D	10.00/20	Cum JT6B	6-4½x5	401	16.3	407	175-2500	Ful 5C65	5	Own 6-23	SF	T	4.7 -11.5
6-487	162	211	46000	13650	10.00/20D	11.00/20	Int RD501	6-4½x5½	501	6.5	444	212-3000	Int T70	5	Own 6-33AR	SF	T	4.7 -11.5
(D) 6-466D	184	233	46000	15370	10.00/20D	11.00/20	GM 6-71	6-4¼x5	426	16.0	570	227-2250	Ful 5C72	5	Own 6-33AR	SF	T	4.7 -11.5
(D) 6-469D	184	233	46000	15450	10.00/20D	11.00/20	Cum NH220	6-5½x6	743	15.5	607	220-2100	Ful 5C72	5	Own 6-33AR	SF	T	4.7 -11.5
86-707	166		70000	17400	11.00/20D		Int RD501	6-4½x5½	501	6.5	444	212-3000	Int T70	5	Own 6-33AR	SF	T	4.7 -11.5
Marmon-Herrington T756	156	192	37000	10298	10/22.5D	10/22.5	Ford	8-3⅞x3⅞	332	7.6	312	205-3800	Cla 265	5	Tim SFHD	SF	H	** -7.20
T806	156	192	43000	10838	11/22.5D	11/22.5	Ford	8-3⅞x3⅞	332	7.6	312	205-3800	Cla 265V	5	Tim SLHD	SF	H	** -7.20
T756A	156	192	37000	10298	10/22.5D	10/22.5	Ford	8-	332	7.6	312	205-3800	Cla 265	5	Eat 28M	SF		** -7.17
T856	156	192	43000	11243	11/22.5D	11/22.5	Ford	8-	401	7.5	345	220-3600	Spi 5652	5	Tim SLHD	SF		** -7.20
Oshkosh W-825-6X6	178		45000	17500	11.00/20		Con R6602	6-4⅞x5½	602		484	218-2600	Own MT825	10	Tim SFD3020P	2F		
(D) W-826-6X6	178		45000	19000	11.00/20		Cum H6B	6-4⅞x6	672		512	160-1800	Own MT826	10	Tim SFD3020P	2F		
(D) WA-906-6X6	208		65000	23200	11.00/24		Cum HRF6B	6-5½x6	743		580	190-2000	Own MT906	12	Tim SFD4600P	2F		
(D) WA-1606	238		65000	23200	11.00/24		Cum NH220	6-5½x6	743		606	220-2100	Own MT1600	12	Tim SFD4600P	2F		
18-34	155		52000	14700	10/22.5†		Int RD501	6-4½x5½	501		444	212-3000	Own MT18	10	Tim SLDD	2F		
18-34-AF	187		52000	14920	10/22.5†		Int RD501	6-4½x5½	501		494	212-3000	Own MT18	10	Tim SLD	2F		
18-38	156		56000	15600	11/22.5†		Int RD501	6-4½x5½	501		444	212-3000	Own MT18	10	Tim SQDD	2F		
Peterbilt (D) 351[1]	185*	Opt	47000	^13100	Opt	11.00/22	Cum NH220B[1]	6-5½x6	743	15.5	606	220-2100	Spicer[2]	12	Tim SQHD[1]	HF	L	4.11-6.60
(D) (c.o.e.) 352[1]	176 *	Opt	47000	^13300	Opt	11.00/22	Cum NH220B[1]	6-5½x6	743	15.5	606	220-2100	Spicer[2]	12	Tim SQHD[1]	HF	L	4.11-6.60
(D) 371	181*	Opt	59000	^16500	Opt	11.00/22	Cum NH220B[1]	6-5½x6	743	15.5	606	220-2100	Spicer[2]	12	Tim SRDD[1]	H2F	L	5.78-10.26
(D) 381[3]	192*	Opt	65000	^20700	Opt	12.00/24	Cum NH220B[1]	6-5½x6	743	15.5	606	220-2100	Spicer[2]	12	Tim SFDD[4]	H2F	L	8.08-11.56
(D) 381HD[3]	192*	Opt	83000	^25000	Opt	14.00/24	Cum NH220B[1]	6-5½x6	743	15.5	606	220-2100	Spicer[2]	12	Tim SFDD[5]	H2F	L	8.08-11.56
Reo C-330	150		35000	^10090	9/22.5	10/22.5	Own OA145†	6-4½x4½	331	6.73	270	145-3200	Cla 250V	5	Eat 28M	SF	T	7.79-
C-332	150		37000	^10160	9/22.5	10/22.5	Own OA145†	6-4½x4½	331	6.73	270	145-3200	Cla 250V	5	Eat 28M	SF	T	7.79-
C-430	150		42000	^10750	10/22.5	11/22.5	Own OH170^	6-4½x4½	331	7.5	297	170-3400	Cla 300V	5	Tim SLHD	HF	T	7.8 -8.6
C-432	150		43000	^11040	10/22.5	11/22.5	Own OH170^	6-4½x4½	331	7.5	297	170-3400	Cla 300V	5	Tim SLHD	HF	T	7.8 -8.6
C-436	150		47000	^11360	10/22.5	11/22.5	Own OH170^	6-4½x4½	331	7.5	297	170-3400	Cla 300V	5	Tim SLHD	HF	T	7.8 -8.6
(6X6) C-440	150		43000	^12575	10/22.5	11/22.5	Own OH170^	6-4½x4½	331	7.5	297	170-3400	Cla 300V	5	Tim SLD	HF2	T	7.87 -
C-540	150		50000	^13395	11/22.5	12/22.5	Own OH185	6-4½x4½	362	7.5	320	185-3400	Cla 300V	5	Tim SQD	HF2	T	7.54-
C-530	155		48000	^12287	11/22.5	12/24.5	Own OH170^	6-4½x4½	331	7.5	297	170-3400	Cla 300V	5	Eat 38DP	SF	T	7.60-8.38
C-536	155		52000	^12567	11/22.5	12/24.5	Own OH170^	6-4½x4½	331	7.5	297	170-3400	Cla 300V	5	Eat 38DP	SF	T	7.60-8.38
D-630	158		42000	11445	9.00/20	10.00/20	OV-207*	8-3⅞x4½	390	7.3	354	207-3400	Fu 5A65	5	Tim SLHD	HF	T	6.16-8.6
D-632	158		43000	11550	9.00/20	10.00/20	OV207*	8-3⅞x4½	390	7.3	354	207-3400	Fu 5A65	5	Tim SLHD	HF	T	6.16-8.6
D-636	158		47000	11742	9.00/20	10.00/20	OV207*	8-3⅞x4½	390	7.3	354	207-3400	Fu 5A65	5	Tim SLHD	HF	T	6.16-8.6
D-633	134		42000	12005	9.00/20	10.00/20	OV207*	8-3⅞x4½	390	7.3	354	207-3400	Fu R-46	8	Tim SLHD	HF	T	6.16-8.6
(c.o.e.) DC-633	130		42000	^12190	9.00/20	11.00/20	Own OV207*	8-3⅞x4½	390	7.3	354	207-3400	Fu R46	8	Tim SLHD	HF	T	6.16-8.6
D-730	158		48000	12730	10.00/20	11.00/22	OV207*	8-3⅞x4½	390	7.3	354	207-3400	Fu 5A65	5	Eat 38DP	SF	T	7.60-8.38
D-732	158		52000	12920	10.00/20	11.00/22	OV207*	8-3⅞x4½	390	7.3	354	207-3400	Fu 5A65	5	Eat 38DP	SF	T	7.60-8.38
D-733	134		47000	12990	10.00/20	11.00/22	OV207*	8-3⅞x4½	390	7.3	354	207-3400	Fu R-46	8	Eat 38DS	SF	T	6.14-7.17
(D) E-630-D 180½			42000	^13835	10/22.5	11/24.5	Cum HN180[2]	6-4⅞x6	672	15.5	504	180-2100	Spi 6452	5	Tim SLHD	HF	T	5.28-6.16
(D) E-632-D 180½			43000	^13895	10/22.5	11/24.5	Cum HN180[2]	6-4⅞x6	672	15.5	504	180-2100	Spi 6452	5	Tim SLHD	HF	T	5.28-6.16
(D) E-633-D 180½			42000	^14190	10/22.5	11/24.5	Cum NH180[2]	6-4⅞x6	672	15.5	504	180-2100	Spi 6452	5	Tim SLHD	HF	T	5.28-6.16
(D) E-730-D 189½			48000	^15160	11/22.5	12/24.5	Cum NH180[2]	6-4⅞x6	672	15.5	504	180-2100	Spi 6452	5	Eat 38DS	SF	T	4.87-7.17
(D) E-732-D 189½			52000	^15360	11/22.5	12/24.5	Cum NH180[2]	6-4⅞x6	672	15.5	504	180-2100	Spi 6452	5	Eat 38DS	SF	T	4.87-7.17
(D) E-733-D 189½			48000	^15515	11/22.5	12/24.5	Cum NH180[2]	6-4⅞x6	672	15.5	504	180-2100	Spi 6452	5	Eat 38DS	SF	T	4.87-7.17
(D) E-830-D-OH 189½			60000	^17310	11.00/22	12.00/24	Cum NH180[2]	6-4⅞x6	672	15.5	504	180-2100	Fu 5C72	5	Eat 42M	HF2	T	7.08-9.27
Ward-La Fr. G-450-T	154	190	45000	13000	10.00/20		Con T5427	6-4⅜x4⅞	427	6.4	350	170-3000	Ful 5A43	5	Tim SLHD	H	L	** 7.20
G-490-T	154	190	49000	13150	11.00/22		Con U6501	6-4½x5½	501	6.1	412	178-2600	Ful 5A62	5	Tim SQDD	H	L	** -6.83
G-530-T	154	190	53000	13500	11.00/22		Con U6501	6-4½x5½	501	6.1	412	178-2600	Ful 5A62	5	Tim SQDD	H	L	** -6.83
G-550-T	154	190	55000	14900	11.00/22		Con R6602	6-4⅞x5½	602	6.2	484	232-2800	Ful 5A62	5	Tim SRDD	H	L	** -7.54
G-590-T	154	190	59000	14976	11.00/22		Con R6602	6-4⅞x5½	602	6.2	484	232-2800	Ful 5A62	5	Tim SRDD	H	L	** -7.54
G-610-T	154	190	61000	17390	11.00/22		Con S6749	6-5⅜x5½	749	5.7	576	251-2800	Ful 5G65	5	Tim SFDD	2H	L	** -8.07
G-650-T	154	190	65000	18000	11.00/22		Con S6749	6-5⅜x5½	749	5.7	576	251-2800	Ful 5G65	5	Tim SFDD	2H	L	** -8.07
(D) D-450-T	154	190	45000	13500	10.00/20		Cum C160	6-4½x5	464	15.8	376	160-2500	Ful 5A62	5	Tim SLHD	H	L	** -7.20
(D) D-490-T	154	190	49000	13650	11.00/22		Cum HRF6B	6-5½x6	743	15.5	580	190-2000	Ful 5W74	5	Tim SQDD	H	L	** -6.83
(D) D-530-T	154	190	53000	14000	11.00/22		Cum HRF6B	6-5½x6	743	15.5	580	190-2000	Ful 5W74	5	Tim SQDD	H	L	** -6.83
(D) D-550-T	154	190	55000	14500	11.00/22		Cum NH230	6-5½x6	743	15.5	606	220-2100	Ful 5W74	5	Tim SRDD	H	L	** -7.54
(D) D-590-T	154	190	59000	15400	11.00/22		Cum NH220	6-5½x6	743	15.5	606	220-2100	Ful 5W74	5	Tim SRDD	H	L	** -7.54
(D) D-610-T	154	190	61000	17800	11.00/22		Cum NH220	6-5½x6	743	15.5	606	220-2100	Ful 5W74	5	Tim SFDD	2H	L	** -8.07
(D) D-650-T	154	190	65000	18500	11.00/22		Cum NH220	6-5½x6	743	15.5	606	220-2100	Ful 5W74	5	Tim SFDD	2H	L	** -8.07
White-Freightliner (D) WFT7564T	156	248		12625	11/22.5		Cum NH220	6-5½x6	743	13.0	575	220-2100	Fu R96	10	TDA SOHD	WF	H	** -6½
(D) WFT6342T	116	150		9995	11/22.5		Cum NH220	6-5½x6	743	13.0	575	220-2100	SP 8041	4	TDA R330	SfD	H	4.77-6.38
(D) WFT6364	196	231		12985	11/22.5		Cum NH220	6-5½x6	743	13.0	575	220-2100	SP 8041	4	TDA SQHD	WF	H	** 6.17

For References and Abbreviations, see page 133

For Directory of the Truck Manufacturers listed above, see page 53

INTEGRAL BUSES....1961

CITY AND INTERCITY

Line Number	BUS MAKE AND MODEL	GENERAL: Passenger Rating	Type (City Service, Parlor, etc.)	Standard Wheelbase (In.)	Overall Length (In.)—Bumper to Bumper	Inside Length (In.)—Passenger Compartment	Tread (In.)—Front and Rear	Complete Vehicle Weight—Dry (Lb.)	Standard Tire Size (In.)—Front and Rear	ENGINE: Make and Model	Cycle and Fuel	Location	Number of Cylinders—Bore and Stroke (In.)	Displacement (Cu. In.)	Rated Horsepower (A.M.A.)	Maximum Brake Hp. at Governed R.P.M.	Maximum Net Torque (Lb. Ft.) at Specified R.P.M.	Compression Ratio—to 1	Compression Pressure—(Lb.) at Specified R.P.M.	Valve Arrangement	Oiling System: Pressure to—
1	Crown A-501-10	37-41	IC	200½	384	353½	80½-72	18500	10.00/20	Int 501	4-G	UF	6-4½x5¼	501	48.6	212-3000	445-1400	6.50		I	acd
2	A-590-10	33-41	IC	200½	384	353½	80½-72	18500	10.00/20	HS 590BH1	4-G	UF	6-5x5	590	60.0	232-2800	490-1600	6.70		I	acdef
3	A-501-11	37-45	IC	232	419½	388	80½-72	19200	11.00/20	Int 501	4-G	UF	6-4½x5¼	501	48.6	212-3000	445-1400	6.50		I	acd
4	A-590-11	37-45	IC	232	419½	388	80½-72	19200	11.00/20	HS 590BH1	4-G	UF	6-5x5	590	60.0	232-2800	490-1600	6.70		I	acdef
5	A-779-11	37-45	IC	232	419½	388	80½-72	20500	11.00/22	HS 779	4-G	UF	6-5¼x6	779	29.8	254-2400	618-1600	6.10		I	acdef
6	AD-743-11	37-45	IC	232	419½	388	80½-72	21200	11.00/22	Cum NHHB600	4-D	UF	6-5½x6	743	27.0	210-2100	570-1600	15.5		I	abcd
7	AD-743-T-11	37-45	P	232	419½	388	80½-72	21200	11.00/22	Cum NHHT6B	4-D	UF	6-5½x6	743		250-2100	690-1500	15.5		I	abcd
8	AD-743-11	49	P	232	480	450	80½-72		11.00/22	Cum NHHB600	4-D	UF	6-5½x6	743	27.0	220-2100	570-1600	15.5		I	abcd
	Fixible																				
9	218WA-1, 2183WA-1	29	IC	218	410¾	300	80¼-69¾	16100	9.00/20	Whi WA3	904-	GR	6-3¾x5	531	54.2	200-2900	440-1400	6.40		L	abcdf
10	218GM-1, 2183DD-1	29	IC	218	410¾	300	80¼-69¾		9.00/20	GM 4-71	2-D	R	4-4¼x5	284	28.9	150-2100	387-1600	16.0		I	abcd
11	2362DD-1	41	IC	236		401½	80½-71½	22400	11.00/20	GM 6174E	2-D	R	6-4¼x5	426	43.4	210-2100	577-1200	17.0		I	abcd
12	Fixible-Twin Coach FT-33	40	CS	222	403	378	80¾-72	15800	10.00/20	Fag FTC-200	4-G	UF	6-4⅝x5	451	45.9	200-2800	400-1600	7.28		I	
13	FT-35	44	CS	232½	420	402	80¾-72	16600	10.00/20	Fag FTC-200	4-G	UF	6-4⅝x5	451	45.9	200-2800	400-1600	7.28		I	
14	FT-40	52	CS	274¾	480	462	80¾-72	18500	11.00/20	Fag FTC-210	4-G	UF	6-4½x5	477	48.6	210-2800	480-1600	7.09		I	
15	FT-40DL	52	CS	274¾	480	462	80⅝-72	18500	11.00/20	Fag FLDH600	4-D	UF	6-4½x5½	597	55.5	160-2225	455-1200	15.8	450-300	I	abcd
16	G.M.C. TGH-3102	31	CS	180½	325⅝	287	81¼-75¼	9635	8.25/20	Own 270	4-G	TR	6-3½x4	270	34.3	124-3200	232-1000	7.75	165-1000	I	abcdfg
17	TDH-3714	37	CS	210½	369½	336	79¼-70½		10.00/20	Own 4-71	2-D	TR	6-4¼x5	284	28.9	140-2000	400-1200	16.0	450- 600	I	abcdfgj
18	SDM-4501	45		235	420	382	79¼-70½	19130	10.00/20	Own 6V71	2-D	TR	6-4¼x5	426	43.4	204-2000	577-1200	17.0	475- 600	I	abcdfgj
19	TDH-4516	45	CS	235	420	382	85¼-76½	18575	11.00/20	Own 6V71	2-D	TR	6-4¼x5	426	43.4	190-2000	550-1200	17.0	475- 600	I	abcdfgj
20	TDH-4517	45	CS	235	420	382	79¼-70½	18765	10.00/20	Own 6V71	2-D	TR	6-4¼x5	426	43.4	190-2000	550-1200	17.0	475- 600	I	abcdfgj
21	TDM-4517	45	CS	235	420	382	79¼-70½	18385	10.00/20	Own 6V71	2-D	TR	6-4¼x5	426	43.4	204-2000	577-1200	17.0	475- 600	I	abcdfgj
22	TDH-5301	53	CS	284¾	479	441	85¼-76½	19605	11.00/20	Own 6V71	2-D	TR	6-4¼x5	426	43.4	190-2000	550-1200	17.0	475- 600	I	abcdfgj
23	SDM-5301	53		284¾	479	441	79¼-70½	20400	11.00/20	Own 6V71	2-D	TR	6-4¼x5	426	43.4	204-2000	577-1200	17.0	475- 600	I	abcdfgj
24	TDH-5302	53	CS	284¾	479	441	79¼-70½	19445	11.00/20	Own 6V71	2-D	TR	6-4¼x5	426	43.4	190-2000	550-1200	17.0	475- 600	I	abcdfgj
25	TDM-5302	53	CS	284¾	479	441	79¼-70½	19525	11.00/20	Own 6V71	2-D	TR	6-4¼x5	426	43.4	204-2000	577-1200	17.0	475- 600	I	abcdfgj
26	PD-4106	41	P	261	420⅝	390	79¼-70½	20670	11.00/20	Own 8V71	2-D	TR	8-4¼x5	567	57.8	238-1650	770-1200	17.0	475- 600	I	abcd
27	SDH-4501	45		235	420	382	79¼-70½	19020	10.00/20	Own 6V71	2-D	TR	6-4¼x5	426	43.4	190-2000	550-1200	17.0	475- 600	I	abcdfgj
28	TDM-4516	45	CS	235	420	382	85¼-76½	18695	11.00/20	Own 6V71	2-D	TR	6-4¼x5	426	43.4	204-2000	577-1200	17.0	475- 600	I	abcdfgj
29	SDH-5301	53		284¾	479	441	79¼-70½	20290	11.00/20	Own 6V71	2-D	TR	6-4¼x5	426	43.4	190-2000	550-1200	17.0	475- 600	I	abcdfgj
30	TDM-5301	53	CS	284¾	479	441	85¼-76½	19725	11.00/20	Own 6V71	2-D	TR	6-4¼x5	426	43.4	204-2000	577-1200	17.0	475- 600	I	abcdfgj
31	Southern Coach S-45-DHC	45	CS	232⅞	419	404	80¼-72	18714	11.00/22	Cum NHHB600	4-D	UF	6-5½x6	743	63.0	200-2100	535-1200	15.5		I	abcdf
32	S-36-DHL	36	CS	194⅞	356½	341½	80¼-71½	14460	10.00/20	Fag FLDH600	D	UF	6-4⅞x5½	597	55.2	160-2400	452-1200	15.8		I	acdfgj
33	S-41-HF	41	CS	221⅝	391½	377½	80¼-72	15300	11.00/20	Fag FTC180	4-G	UF	6-4¼x4¾	404	43.4	180-2400	390-1600	7.50		I	acdf
34	S-50-DHC	50	CS	275⅝	461½	447	86¼-72	21310	11.00/22	Cum NHHB600	4-D	UF	6-5½x6	743	63.0	200-2100	535-1200	15.5		I	abcdf
35	R-37	33	CS	182½	356½	316½	80½-71½	14530	10.00/20	Int RD450	4-G	R	6-4⅝x5	451	45.9	182-3000	388-1600	6.50	388-1600	I	abcdf

ABBREVIATIONS

♣—Two used.
‡—Torque converter.
†—Front, 14⅞; rear, 15.
•—Hundred rpm.
ª—Air suspension.
⁴—10 or 12 also available.

a—Main bearings.
b—Wrist pins.
c—Connecting rods.
d—Camshaft.
e—Accessory drive.
f—Valve lifters or rocker arms and shafts.
g—Timing gears or chain.
i—Balancer shaft.
j—Blower drive.
A—Air.
BL—Brown-Line.
Ce—Centrifugal.
CIC—City and intercity service.
Cla—Clark Equipment Co.
CS—City service.
Cum—Cummins Engine Co.
D—Diesel fuel.
De—Downdraft.
DR—Delco-Remy Div.
Ds—Drive shaft.
Dup—Duplex.
Fag—Fageol.
F-S—Fuller or Spicer.
Fu—Fuller Mfg. Co.

For Directory of Bus Manufacturers listed above, see page 53

Military Cargo Vehicle Specifications

MODEL	Manufacturer	PAY-LOAD (Tons): Cross Country	PAY-LOAD (Tons): Highway	WEIGHT (Lbs.): Empty	WEIGHT (Lbs.): Fully Equipped with Cross Country Payload	OVERALL DIMENSIONS (In.): Width	OVERALL DIMENSIONS (In.): Length	OVERALL DIMENSIONS (In.): Height	Axle Ground Clearance (In.)	ENGINE: Make	ENGINE: No. of Cylinders, Bore and Stroke	ENGINE: Displacement (Cu. In.)	ENGINE: Fuel Used	ENGINE: Cooling Medium	ENGINE: Max. Brake Hp. at R.P.M.	Maximum Speed (Mph)	Max. Fording Depth (In.)	Cruising Range—Miles	TRANSMISSION: Make	TRANSMISSION: Type	TRANSMISSION: No. of Forward Speeds	TRANSMISSION: No. of Reverse Speeds	TRANSMISSION: Transfer Case	Differential Type	Suspension—Type	SERVICE BRAKES: Actuated by	SERVICE BRAKES: Type	Wheelbase (In.)
M38A1	WM	½	½	2,665	3,865	60⅞	138⅝	73¾	8¼	WM	4-3½x4⅜	134.2	G	Liq	70-4000	71	70	280	WG	Co	3	1	TS	C	SE	.....	Hd	81
M37	Do	¾	1	5,950[1]	7,800[1]	73½	189¾[1]	89¾	10¾	Do	6-3½x4⅝	230.2	G	Liq	94-3200	55	72	225	NP	Co	4	1	TS	C	SE	.....	Hd	112
M35	Reo	2½	5	12,880[1]	18,230[1]	96	274⅜[1]	111⅞	10⅝	Reo	6-4½x4½	331.0	G	Liq	146-3400	58	72	300	Spi	Co	5	1	TS	C	Bcp	Air	Hd	154
M211	GM	2½	5	13,580[1]	18,930[1]	96	289[1]	112½	12	GM	6-4x4	301.6	G	Liq	145-3400	58	72	300	GM	Hy	8	2	(2)	C	Bcp	Air	Hd	156
M54	IH	5	10	19,945[1]	30,295[1]	97	314[1]	116	11½	Con	6-4⅞x5⅝	602.0	G	Liq	224-2800	53	72	214	Spi	Co	5	1	TS	C	Bcp	Air	Hd	179
M8A1[3]	AC	7½	...	44,500[1]	63,000[1]	130½	265½[1]	120	18½	Con	6-6⅝x5⅝	895.9	G	Air	500-2800	41	60	180	GM	Cr	2	1	.....	.....	Itb	Md	Me	157½[4]
M76[3]	GM	1½	...	8,329	12,000	98	189	96⅜	14⅜	Con	4-4⅝x4	268.8	G	Air	135-3200	28	Am	200	GM	Cr	2	1	.....	.....	Itb	Md	Me	98⅝[4]
M125	MT	10	15	32,550[1]	52,900	114	318[1]	129	15¾	RL	8-5½x4⅞	844.0	G	Liq	297-2600	40	78	300	MT	Co	10	2	TS	.....	Bcp	Air	Air	181½
M274	WM	½	½	925	1,925	49⅜	118¼	49¼	8½	WM	4-2⅝x2¼	53.5	G	Air	15-3200	25	18	...	WM	Co	3	1	TS	N	N	Ma	Me	57
M422	AM	¾	½	1,700	2,200	60⅝	107	59½	9¾	AM	4-3¼x3¼	107.8	G	Air	55-3600	55	60	255	NP	Co	4	1	S	L	IE	Ma	Hd	65
M151	Fo	¾	¾	2,273	3,073	62¼	132	71	11½	Ord	4-3⅞x3	141.5	G	Liq	71-3900	65	60	300	Ord	Co	4	1	S	C	Co	.....	Hd	85

ABBREVIATIONS

1—With winch.
2—Two-speed reduction unit on transmission.
3—Tracked vehicle.
4—Track contact length.
AC—Allis-Chalmers M'f'g. Co.
Am—Amphibious.
AM—American Motors Corp.
Bcp—Bogie, constant parallel arm (leaf springs).
C—Conventional.
Co—Coil.
Con—Continental Motors Corp.
Cr—Cross drive.
De—Dodge Div.
Fe—Ford Motor Co.
G—Gasoline.
GM—General Motors Corp.
Hd—Hydraulic.
Hy—Hydramatic.
IE—Independent elliptic.
IH—International Harvester Co.
Itb—Individual torsion bar.
L—Locking. **Liq**—Liquid.
Ma—Manual.
Md—Multiple disc.
Me—Mechanical.
MT—Mack Trucks, Inc.
N—None.
NP—New Process.
Ord—Ordnance.
RL—Roiline.
S—Single speed.
SE—Semi-elliptic.
Spi—Spicer Div.
TS—Two-speed.
WG—Warner Gear.
WM—Willys Motors.

1961.... INTEGRAL BUSES

CITY AND INTERCITY

FUEL SYSTEM			ELECTRICAL SYSTEM			Governor			TRANSMISSION				Universals		REAR AXLE		BRAKES				SPRINGS				RUNNING GEAR			
Carburetor or Injector Pump					Battery												Service		Hand		Front		Rear					
Make and Type	Size (In.)	Tank Capacity (Gal.)	Ignition System—Make	Generator and Starter—Make	Voltage and Amp. Hours Capacity	Type	Max. Governed Speed—M.P.H.	Clutch—Make and Size (In. diam.)	Make	No. of Forward Speeds	Low Speed Ratio—to 1	Type	Number	Size of Series	Make and Model	Standard Gear Ratio—to 1	Type of Applicator	Total Lining Area (Sq. in.)	Drum Diam. (In.)	Operates on—	Total Lining Area (Sq. in.)	No. of Leaves	Length and Width (In.)	No. of Leaves	Length and Width (In.)	Front Axle—Make	Steering Gear—Make	Outside Diameter of Min. Turn. Circle (Ft.)	Line Number
Hol..Do	1¼	70	DR	DR	12-158	Su	Var	LR...15	Fu	5	8.08	M	2	1600	Tim....L143P	5.29	A	960	16½	Ds	65	11	50-4	17	60-4	Tim	Ro	70	1
Hol..Do	1¼	70	DR	DR	12-158	Su	Var	Lg...15½	Fu	5	8.08	M	2	1700	Tim...QT143P	4.63	A	960	16½	Ds	65	11	50-4	17	60-4	Tim	Ro	70	2
Hol..Do	1¼	70	DR	DR	12-158	Su	Var	LR...15	Fu	5	8.08	M	2	1600	Tim....L143P	5.29	A	960	16½	Ds	65	11	50-4	17	60-4	Tim	Ro	78	3
Hol..Do	1¼	70	DR	DR	12-158	Su	Var	Lg...15½	Fu	5	8.08	M	2	1700	Tim...QT143P	4.63	A	960	16½	Ds	65	11	50-4	17	60-4	Tim	Ro	78	4
Hol..Do	2	70	DR	DR	12-158	V	Var	Lg...17	Fu	5	7.33	M	2	1700	Tim....R143P	4.11	A	960	16½	Ds	65	12	50-4	18	60-4	Tim	Ro	78	5
Cum		70	DR	DR	12-158		Var	Lg...17	Fu	5	7.33	M	2	1700	Tim....R143P	4.11	A	960	16½	Ds	65	12	50-4	18	60-4	Tim	Ro	78	6
Cum		70		DR	12-158	Ce	Var	Spi...14	F-S	5[4]			2	1700	Tim.....R	4.11	A	960	16½	Ds	65	12	50-4	18	60-4	Tim	Ro	78	7
.....		100	DR	DR	12-158			Lg.....17	Fu	5	7.33	M	2	1700	Tim.....SLHD	4.11	A	1216	16½	Ds	65	12	50-4	11	57¾-4	Tim	Ro	102½	8
Dup..Do	1¼	90	DR	DR	12-160	Ce	69	Lg...15½	Cla	4	4.35	M	2	1600	Tim....H143P	4.62	A	610	16½	Ds	45	△	.....	△	.....	Tim	Ro	76	9
GM		90	DR	DR	12-160	Ce	66	Lg...15½	Spi	5	5.08	M	2	1500	Tim.....H143	4.62	A	610	16½	Ds	45	△	.....	△	.....	Tim	Ro	76	10
GM		125		DR	12-160		70	Lg.....17	Spi	5	5.08	M	2	1600	Tim.....R163	3.59	A	792	16½	Rw	.....	△	.....	△	.....	Own	Ro	81	11
Hol..Do		125	DR	LD	12-160	Ce	28[6]	None	Spi‡		5.43	H	2	1600	Tim.....Q110	6.16	A	844	16½	Ds	63	13	56-4	13	60-4		Ro	67⅔	12
Hol..Do			DR	LD	12-160	Ce	28[6]	None	Spi‡		5.43	H	2	1600	Tim.....Q110	6.16	A	844	16½	Ds	63	12	60-4	13	64-4	Tim	Ro	69⅔	13
Hol..Do			DR	LD	12-160	Ce			Spi‡		5.43	H	2	1600	Tim.....R110	6.16	A	844	16½	Ds	63	13	60-4	15	64-4	Tim	Ro	79½	14
Ros		125		LN	12-160	Ce	23[6]	None	Spi‡		5.43	H	2	1600	Tim.....R110	6.17	A	844	16½	Ds	63	13	60-4	15	64-4	Tim	Ro	79½	15
Zen..Do	1½	60	DR	DR	12-150	Ce	52	None	GM	4	3.82	GH	2	1400	Cla....130444	6.33	A	620	14½	Ds	28	10	52-3	11	59-3	Cla	Sag	66	16
Own		80		DR	12-175▲	Ce	44	Own...15	GM‡	If		H	2	1600	Tim....57620W	5.16	A	646	14½	Ds	69	△	.....	△	.....	Tim	Sag	69¼	17
Own		95		DR	12-175▲	Ce	55¼	Own...15	Spi	4	4.36	M	2	1700	Tim.58822WX2	4.13	A	705	14½	Ds	104	△	.....	△	.....	Tim	Sag	72	18
Own		95		DR	12-175▲	Ce	49¼	Own...15	GM‡	If		H	2	1700	Tim.58823WX1	4.71	A	705	14½	Ds	104	△	.....	△	.....	Tim	Sag	74½	19
Own		95		DR	12-175▲	Ce	49¼	Own...15	GM‡	If		H	2	1700	Tim.58822WX1	4.71	A	705	14½	Ds	104	△	.....	△	.....	Tim	Sag	78	20
Own		95		DR	12-175▲	Ce	55¼	Own...15	Spi	4	4.36	M	2	1700	Tim.58822WX1	4.13	A	705	14½	Ds	104	△	.....	△	.....	Tim	Sag	78	21
Own		95		DR	12-175▲	Ce	45	Own...15	GM‡	If		H	2	1700	Tim.59723WX1	5.14		882	14½	Ds	104	△	.....	△	.....	Tim	Sag	84½	22
Own		95		DR	12-175▲	Ce	59½	Own...15	Spi	4	4.36	M	2	1700	Cla...59723WX	4.11	A	882	14½	Ds	104	△	.....	△	.....	Tim	Sag	84½	23
Own		95		DR	12-175▲	Ce	45	Own...15	GM‡	If		H	2	1700	Tim.59722WX2	5.14	A	882	14½	Ds	104	△	.....	△	.....	Tim	Sag	84¼	24
Own		95		DR	12-175▲	Ce	57	Own...17	Spi	4	4.36	M	2	1700	Tim.59722WX2	4.11	A	882	14½	Ds	104	△	.....	△	.....	T m	Sag	84¼	25
Own		140		DR	12-205▲	Ce	60	Lg.....15	Spi	4	3.86	M	2	1700	Tim..58863WX	4.13	A	764	14½	Ds	104	△	.....	△	.....	Tim	Sag	84	26
Own		95		DR	12-175▲	Ce	49¼	Own...15	GM‡	If		H	2	1700	Tim..58822WX	4.71	A	705	14½	Ds	104	△	.....	△	.....	Tim	Sag	72	27
Own		95		DR	12-175▲	Ce	56½	Own...15	Spi	4	4.36	M	2	1700	Tim..58823WX	4.13	A	705	14½	Ds	104	△	.....	△	.....	Tim	Sag	74½	28
Own		95		DR	12-175▲		45	Own...15	GM‡	If		H	2	1700	Tim..59723WX	5.14	A	882	14½	Ds	104	△	.....	△	.....	Tim	Sag	84½	29
Own		95		DR	12-175▲		59½	Own...15	Spi	4	4.36	M	2	1700	Tim..59723WX	4.11	A	882	14½	Ds	104	△	.....	△	.....	Tim	Sag	84½	30
Cum		115		Op	12-168	Ce	41	Spi...16	Spi‡	If		H	2	1700	Tim..R110WX8	6.83	A	786	16½	Ds	126	13	62-3½	16	70-4	Tim	Ro	84½	31
Ros		115		Op	12-168		41	Spi...14	Spi‡	If		H	2	1600	Tim..L110P	6.16	A	622	16½	Ds	101	11	62-3½	12	70-4	Tim	Ro	71½	32
Hol..Do		115	Mal	Op	12-168	Su	41	Spi...14	Spi‡	If		H	2	1600	Tim..Q110P	6.83	A	685	16½	Ds	101	12	62-3½	14	70-4	Tim	Ro	80	33
Cum		115		Op	12-168	Ce	41	Spi...16	Spi‡	If		H	2	1700	Tim..R110W	6.83	A	904	16½	Ds	126	△		△		Tim	Ro	82½	34
Hol..Do		75	DR	LN	12-168	Su	50	BL...14	Spi	3	3.80	M	2	1500	Tim.....L110	6.16	A	684	16½	Ds	96	10	62-3½	14	70-4	Tim	Ro	63	35

G—Gasoline.
GH—G. M. Hydramatic.
GM—General Motors Corp.
H—Hydraulic.
Hol—Holley Carburetor Co.
HS—Hall-Scott.
I—Valve in head.
IC—Intercity service.
If—Infinite.
Int—International Harvester Co.
L—Valves in side.
LD—Leece-Neville (alternator); Delco-Remy (starter).
Lg—Long Mfg. Div.
LN—Leece-Neville Co.
LR—Lipe Rollway Corp.
Mal—Mallory.
Op—Optional.
P—Parlor.
R—Rear.
Ro—Ross Gear and Tool Co.
Ros—Roosa-Master.
Rw—Rear wheels.
Sag—Saginaw Steering Gear Div.
Spi—Spicer Mfg. Div.
Su—Suction.
Tim—Timken Detroit Axle Co.
TR—Transverse in rear.
UF—Under floor.
V—Vacuum.
Whi—White Motor Co.
Zen—Zenith Carburetor Div.

For Directory of Bus Manufacturers listed above, see page 53

DIESEL ENGINES FOR USE IN DIESEL-ELECTRIC LOCOMOTIVES

ENGINE MAKE AND MODEL	Cylinder Arrangement	Cycle	No. of Cylinders, Bore and Stroke (In.)	Displacement (Cu. In.)	Compression Ratio	Maximum Brake HP at Specified RPM	Continuous HP at Specified RPM	Supercharger Used	Weight (Lb.)	OVERALL DIMENSIONS (In.)		
										Length	Width	Height
ALCO.....251B	I	4	6-9x10½	4008	13.00	1050-.....-1025		Yes	22100	135½	58¾	87¼
.....251B	I	4	6-9x10½	4008	13.00	975-.....-1000		Yes	22100	135½	58¾	87¼
.....251B	V	4	12-9x10½	8016	13.00	1950-.....-1000		Yes	32650	157¾	70½	93⅛
.....251B	V	4	16-9x10½	10688	13.00	2600-.....-1000		Yes	42000	197⅛	70½	99¾
.....539	I	4	6-12½ x 13	9572	12.50	1000-.....- 740		Yes	34800	191	57½	97
Cooper-Bessemer..FWB-6-LT	I	4	6-9x10½	4008	12.70	1500-1200	1250-1100	Yes	22000	134	59⅛	80½
.....FVBL-8-T	V	4	8-9x10½	5344	12.70	2000-1200	1673-1100	Yes	21500	102½	60	75⅝
.....FVBL-12-T	V	4	12-9x10½	8016	12.70	3000-1200	2000-1100	Yes	28500	133½	60	75⅝
.....FVBL-16-T	V	4	16-9x10½	10688	12.70	4000-1200	3350-1100	Yes	35000	166½	60	75⅝
Electro-Motive.....6-567C	V	2	6-8½x10	3402	16.00	.....	600- 835	.....	15660	133	65	84
.....8-567C	V	2	8-8½x10	4536	16.00	.....[1]900- 835	No[2]	18000	139⅛	62½	92½
.....12-567C	V	2	12-8½x10	6804	16.00	.....[1]1200- 800	No[2]	25000	174½	64½	90⅛
.....16-567D1	V	2	16-8½x10	9080	20.00	.....[1]1750- 835	No[2]	32000	212⅛	62½	88⅛
.....16-567D2	V	2	16-8½x10	9080	14.50	.....2200- 835	Yes	33500	212⅛	64½	98⅛
.....16-567D3[4]	V	2	16-8½x10	9080	14.50	.....2600- 835	Yes	34000	212⅛	68¾	98⅛
.....16-567D4[4]	V	2	16-8½x10	9080	14.50	.....2800- 900	Yes	34000	212⅛	68¾	98⅛
Fairbanks-Morse....6-38D8⅛	O	2	6-8⅛x10	6221	16.10	1290- 850	1290- 850	No[3]	26099	171⅜	60	107½
.....8-38D8⅛	O	2	8-8⅛x10	8295	16.10	1720- 850	1720- 850	No[3]	33000	200⅛	67	108¼
.....10-38D8⅛	O	2	10-8⅛x10	10369	16.10	2150- 850	2150- 850	No[3]	38580	227⅛	67	108¼
.....12-38D8⅛	O	2	12-8⅛x10	12443	16.10	2580- 850	2580- 850	No[3]	44910	260¼	67	108¼

ABBREVIATIONS

[1]—Horsepower available for traction.
[2]—Engine has Roots type blower for scavenging use only; not supercharged.
[3]—Equipped with Roots type blower with three lobe spiral impellers.
[4]—Equipped with after coolers.
I—In line.
O—Opposed piston.
V—"V" type engine.

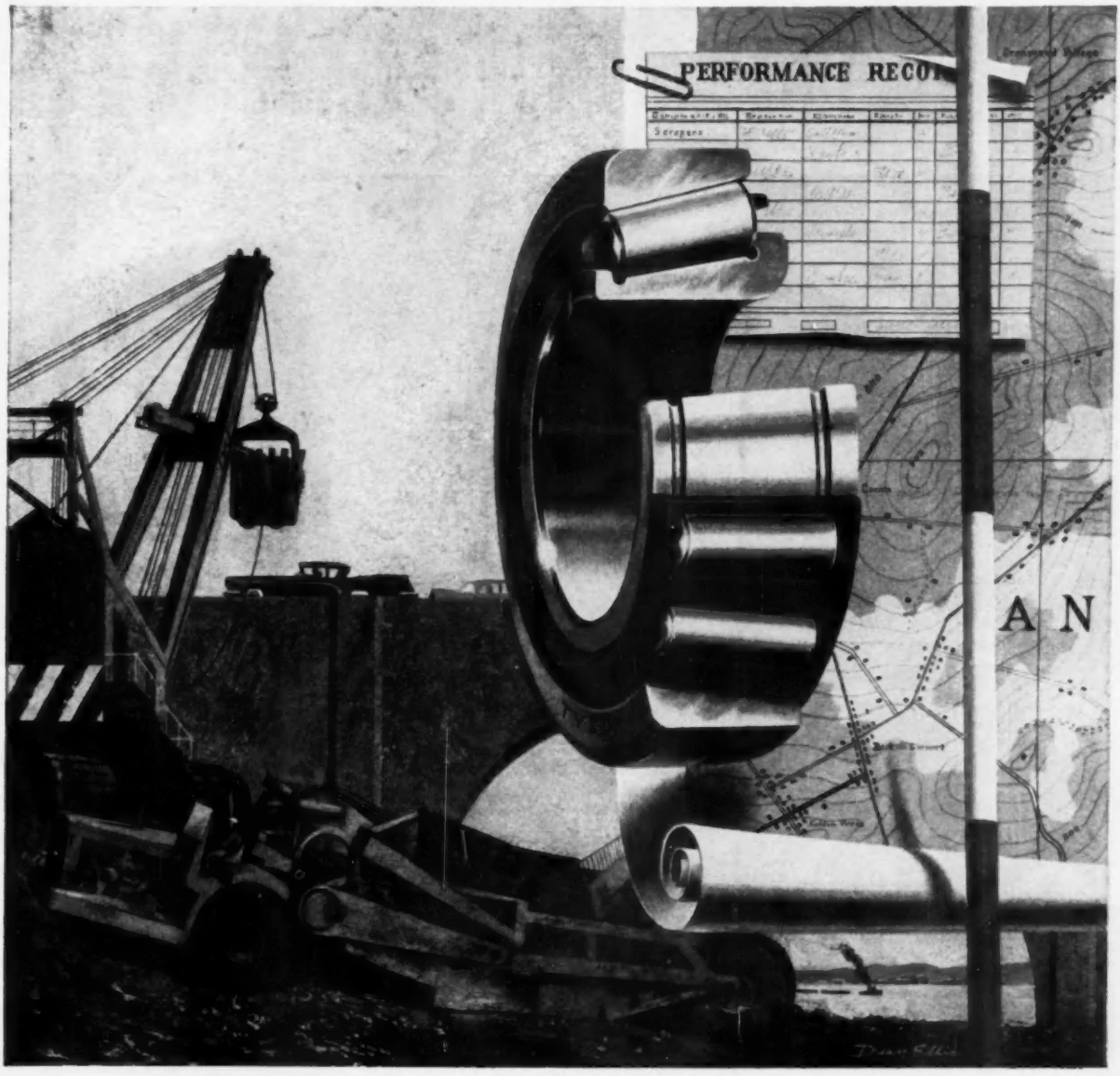
For Directory of the Diesel Engine Manufacturers listed above, see page 53

Gown by
Fon Tayne
reflected in
stainless by
Crucible
Steel
Company
of America

Stainless by

CRUCIBLE

where a fine finish is only the beginning



Parts determine performance

Few parts make as big a difference in product performance as the bearing. For the right bearing in the right place helps improve over-all performance — prevents breakdowns and high maintenance costs. Where can you get impartial assistance in choosing the right bearing? Call SKF. No other producer offers as much experience in improving product performance with bearings as SKF, makers of the most complete line of ball and roller bearings. 5909

Spherical, Cylindrical, Ball, and "Tyson" Tapered Roller Bearings

EVERY TYPE—EVERY USE

SKF

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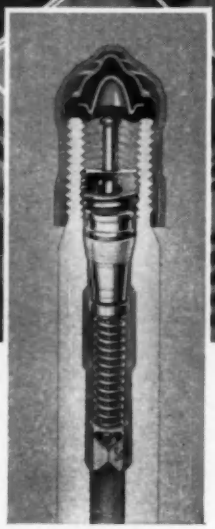
The American Automotive Industry—the world's

Millions of American vehicles—air



AIR CONTROL Since 1844

Highest quality in vast quantity, possible only in America, enables millions of Schrader tire valves to match millions of tires in superb performance.

greatest enterprise—depends on tire accomplishments

suspended by American tires and valves—world's top bargain

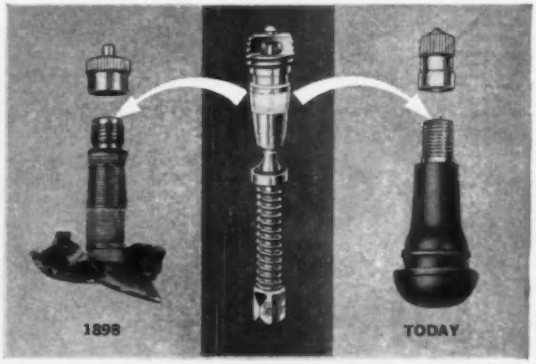
No vehicle is better than its weakest part. And yet the American automotive industry can offer vehicle, tire and tire valve mass production unmatched anywhere else in the world. America's unique capability is to mass produce thousands of different parts, each of which matches every other in superb quality. Here lies the secret of the world's most successful industry.

Mass production of high quality is never achieved over night. The Schrader Tire Valve's operating principle, for example, has been called the Ace of Standardization for excellent reason. The history of these valves parallels the history of tires and pneumatic-equipped vehicles, right back to their very beginnings. Modern Schrader valves not only match the performance of today's tires and vehicles, but are being designed to match projected performance of the future, on or off the road.

QUALITY CONTROL PROGRAMS are basic in all Schrader facilities, and are so successful that tire valve performance is taken for granted on Schrader-equipped vehicles the world over.

American vehicles' reliable components like Schrader tire valves offer astonishing quality for amazingly little money—the biggest bargain in the long run.

INDUSTRY-WIDE COOPERATION is the hallmark of America's Automotive, Tire and Tire Valve Industries. For decades these efforts have been mutually beneficial, profitable and progressive.



MODERN SCHRADER VALVE CORE with the "Miracle-Material," Teflon, is totally interchangeable in all standard tire valves ever made.

A. SCHRADER'S SON · BROOKLYN 38, N. Y.
Division of Scovill Manufacturing Company, Incorporated

Schrader®
a division of **SCOVILL**

FIRST NAME IN TIRE VALVES

FOR ORIGINAL EQUIPMENT AND REPLACEMENT

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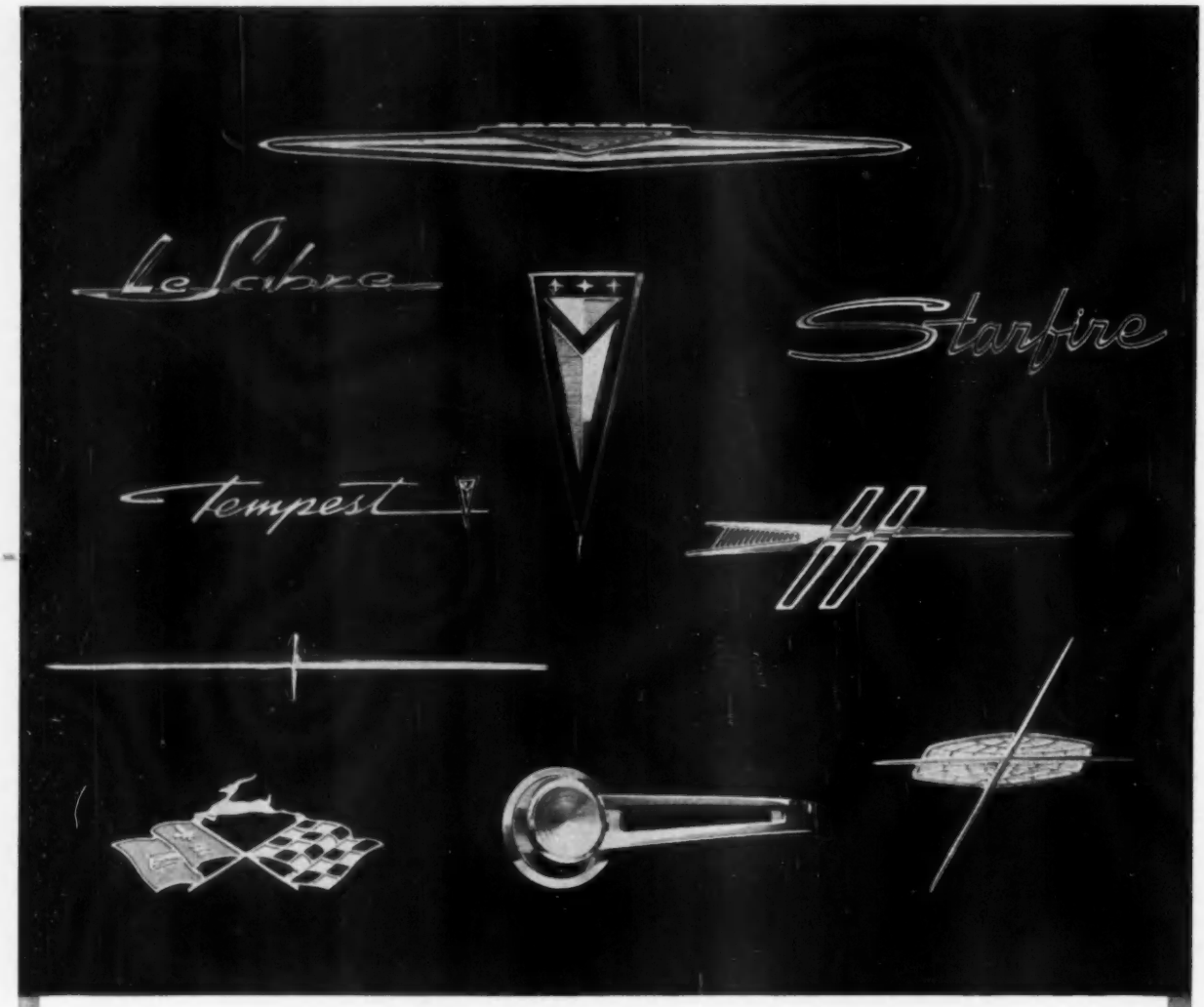

The "Avenue of Fashion" in style and beauty is custom designed to suit your taste in a fine automobile. With the flair of the artist and the touch of the master "the Artisans of Industry" give decor to the car. With the perfection of custom fitting and refinement of meticulous design, Ternstedt enhances this style and beauty by their quality treatment of functional and ornamental parts. For the flair of the artist and the touch of the craftsman in matters of taste—turn to Ternstedt.

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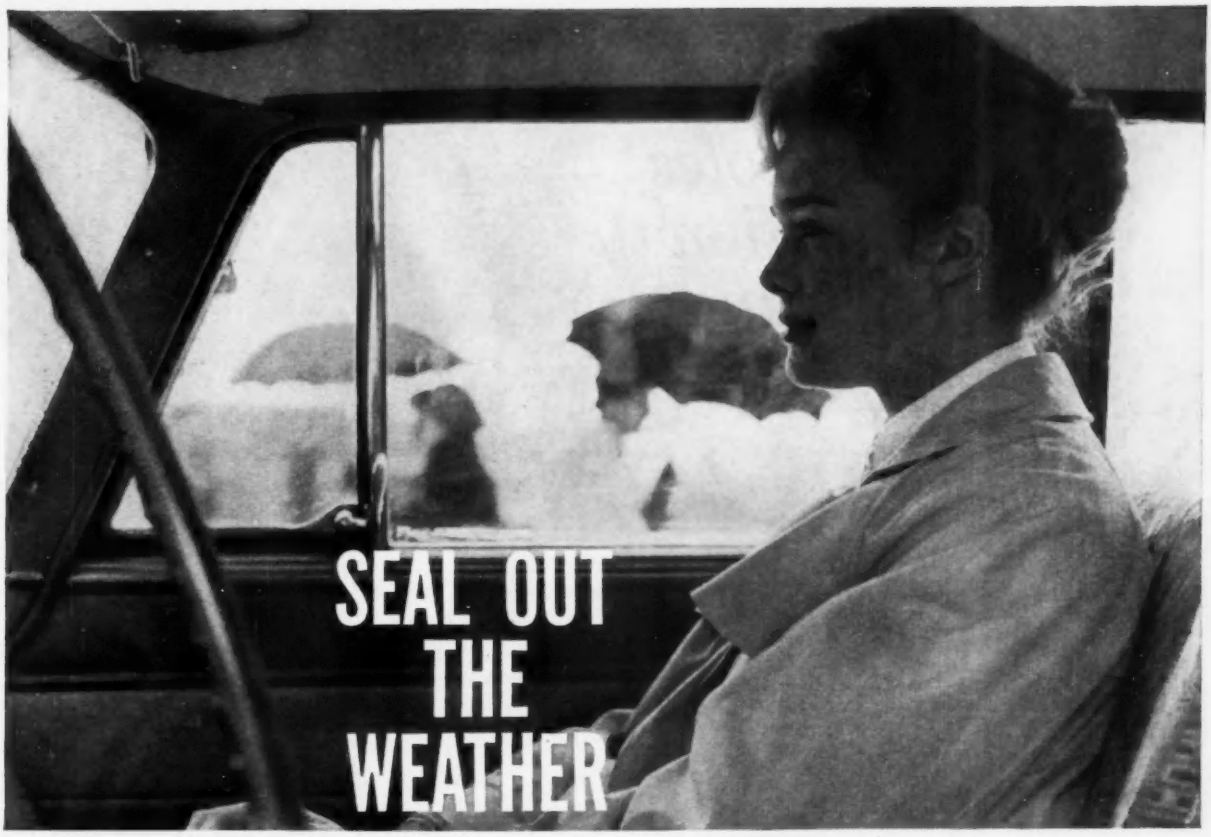


with resilient Schlegel pile liner

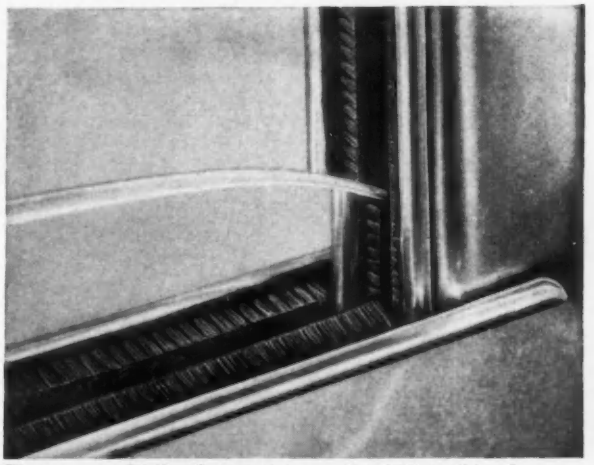
Only a flexible, resilient pile liner like Schlegel can seal out all bad weather from automobile windows.

The pile must hug the surface of the glass tightly, flexing with every movement of the window. And Schlegel pile, because of its *natural resilience*, keeps the seal consistently tight to shut out rain, wind, dust and noise.

Natural resilience. It comes from a balanced blend of fibers. Schlegel woven pile can be supplied in the most resilient grade to eliminate your specific problems.

It's a dense pile. It holds the glass firmly in place to prevent rattles. The pile will stay uniformly dense through years of wear, because we interlock each tuft of yarn into a woven fabric backing.

You can get Schlegel woven pile in the type of glass run channel or belt strip you need. Specify Schlegel pile—favorite of the industry since glass windows were first used in cars.



Glass moves friction-free and is weathertight in this glass run channel with resilient Schlegel woven pile liners.

Schlegel

SERVING THE AUTOMOTIVE INDUSTRY

SCHLEGEL MANUFACTURING COMPANY

1555 Jefferson Rd., Rochester 23, N. Y.
In Canada: Oakville, Ontario

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DOT PLUG BUTTONS

fill holes functionally and decoratively

Inexpensive DOT Plug Buttons are ideal for covering drilled or molded holes in metal or plastic structures of all types. Finger pressure snaps them into place, spring tension holds them there without rattling even under conditions of severe vibration.

Used as covers for inspection or maintenance-access holes, Plug Buttons are easily removed and can be re-inserted repeatedly without lessening their effectiveness. Used in combination with plastic lens inserts, Plug Buttons make excellent indicator-light covers. Faceted, Fresnel-type or plain lenses can be made in a variety of colors and can be designed to show words, letters or symbols, according to the requirements of the particular application.

DESIGN ENGINEERING SERVICE

Designers, metallurgists and plastics specialists on DOT's engineering staff are equipped to work out optimum combinations of metal and plastics to suit your particular requirements. Hundreds of variations in shape, finish and material are possible.

The basic steel or brass Plug Button, for example, can be parkerized or polished or finished in chrome, nickel, zinc, copper or any of a wide variety of colored enamels. Designs can be stamped into the metal or molded Lucite lenses can be inserted.

Nylon, polystyrene or flexible polyethylene Plug Buttons can be molded to show trademarks, indicator symbols or any other design.

For further details, write for Engineering Data Catalog, Section D

MAKERS OF DOT FASTENERS

CARR FASTENER COMPANY

Division of United-Carr Fastener Corporation, Cambridge 42, Mass.

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ENJAY PLASTICS

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(Advertisement)

CRUCIBLE STEEL COMPANY OF AMERICA

BRING YOUR DESIGN AND DEVELOPMENT PROBLEMS TO CRUCIBLE

In Crucible's Central Research Laboratory, a young scientist is determining the chemical analysis of a tiny microsection of steel so small that it would take the best microscope to even see it. In Crucible's Midland Mill, technical task forces are currently studying *New* production equipment to provide better steels for your industry in the near future. At Crucible's Sanderson-Halcomb Works, an old-time tool steel metallurgist coaches a young engineering graduate in the Quality Control Department running fracture tests on water hardening tool steel. At Crucible's Spaulding Works, engineers check the final installation of a new bright annealing line.

Crucible has dedicated itself to technical progress in the specialty steel industry for the 1960's. Research and development effort will be expanded.

What does this mean to the Automotive Industries?

IN TONNAGE PRODUCTS

The automotive industry has widely accepted Crucible's carbon and alloy tonnage billet and bar products. Crucible is dedicated to the technological improvement of those steels from which the automotive industry manufactures such products as *bearings, axle shafts, fasteners, engine intake valves, torsion bars, springs, gears, steering knuckles, automatic transmission components* and all automatic machined and forged parts.

Crucible's continued technological emphasis will provide better steels for better automobiles as Crucible is also the leading producer of specialty steels.

IN STAINLESS STEELS

Crucible is continuing a massive effort to improve the corrosion resistance of all types of stainless steels. The installation of new bright annealing lines at two locations is only a part of this effort. Crucible, pioneer developer of stainless steel for automotive exhaust valves, is continuing work on this type of steels. Also, special stainless steels are being groomed for bumpers, tailpipes, mufflers and exhaust control devices.

With revolutionary developments under study in the automotive engine field such as the experimental light weight stainless steel engine, designers may take a closer look at vacuum melted super-alloys and corrosion-resistant light, strong titanium products. These also are fields where Crucible research has blazed the trail. *For your copy of*

(CONTINUED)

STAINLESS (CONTINUED)

"The Fabricator's Handbook," write to Crucible Steel Company of America, Dept. A1, Box 88, Pittsburgh 30, Pa.

IN TOOL STEELS

Crucible has recently developed an exclusive forging process which provides greater density in the center of large tool steel forgings and bars. This will enable the automotive industry to build larger and stronger die casting dies with better service for such critical applications as grilles, transmission housings and engine blocks.

Crucible maintains a staff of highly trained tool steel technical service engineers in the field—to give on-the-spot assistance to automotive plants and their vendors for increased tool and die life. These experienced metallurgical engineers are just as readily available to assist the design engineer in the full utilization of the high strength and unusual physical properties of tool steels for automotive production parts. Power steering was the outgrowth of such a co-operative venture.

Crucible's national warehouse distribution system has increased its automotive die steel inventory by number of sizes and tons per size to provide "local" delivery to automotive die shops anywhere in the United States.

IN COLD ROLLED SPECIALTY STRIP

Crucible, working with associated companies and prime producers, developed the techniques and standards which have resulted in the following products made from cold rolled high carbon and low alloy strip:

Speed nuts	Horn mounting springs
Arm rest springs	Horn diaphragms
Cushion springs	Carburetor rocker arms
Wheel balance clips	Distributor timing springs

Automatic transmission parts

Crucible's technical team is now working to utilize cold rolled high carbon strip for snow tire cleats. For a general reference to Crucible products, *write for your copy of the "Pocket Data Book," Crucible Steel Company of America, Dept. A1, Box 88, Pittsburgh 30, Pa.*

CAST PRODUCTS

Crucible Alnico magnets, long used for radio speakers, are under evaluation for applications such as door latch assemblies and power regulated devices for windows, seat adjustment and other power driven controls.

Another cast product from Crucible is Rexweld® Hard Surfacing Rod, used to provide exhaust valves with heat and abrasion resistance. *For your copy of "Permanent Magnet Design," write to Crucible Steel Company of America, Dept. A1, Box 88, Pittsburgh 30, Pa.*

WAREHOUSES AND SALES OFFICES

To take full advantage of the vast technical resources of Crucible Steel Company, please contact the nearest branch office. Crucible offices and warehouses are located in Atlanta • Baltimore Boston • Buffalo • Charlotte • Chicago • Cincinnati Cleveland • Columbus • Dallas • Dayton • Denver Detroit • Erie • Grand Rapids • Houston • Indianapolis • Los Angeles • Miami • Milwaukee • New Haven • West Caldwell, N. J. • Mineola, L. I., N. Y. Philadelphia • Pittsburgh • Portland • Providence Rockford, Ill. • Salt Lake City • San Francisco Seattle • Springfield, Mass. • St. Louis • Syracuse Tampa • Toledo • Tulsa • Twin Cities. For data on Crucible Specialty Steels, *write for your copy of "The Product and Warehouse Catalog," Crucible Steel Company of America, Dept. A1, Box 88, Pittsburgh 30, Pa.*

CRUCIBLE STEEL COMPANY OF AMERICA

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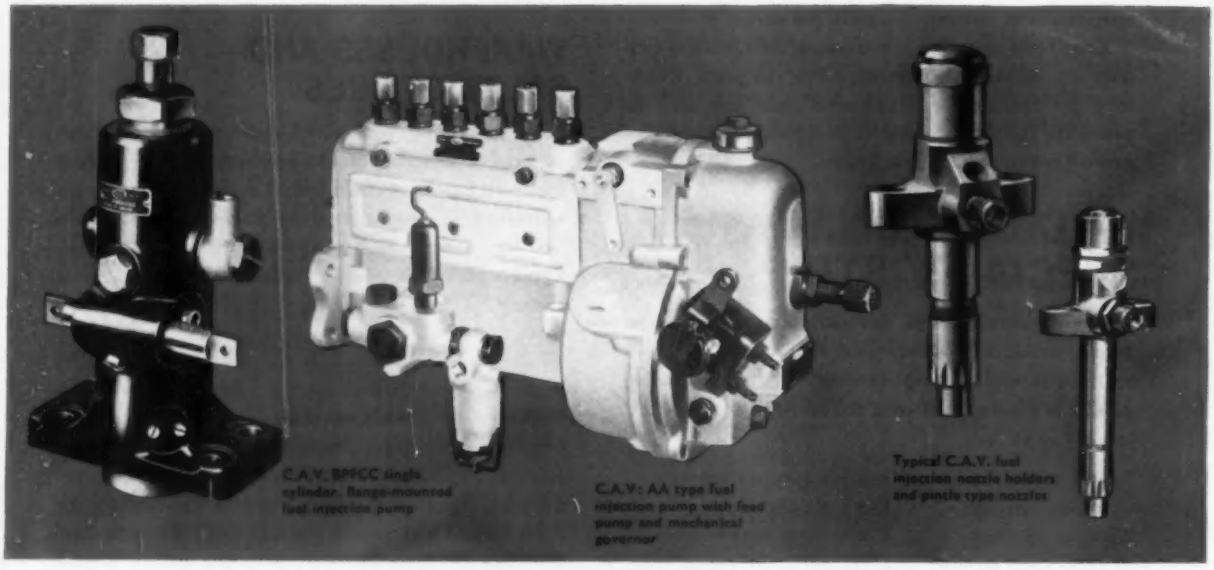
Design leaders, with vast technical, commercial and production resources, C.A.V. offer manufacturers, in addition, development resources and test bed facilities unequalled anywhere.

Service for C.A.V. products is provided by a world-wide organisation, with fully equipped depots and service agencies in over 100 countries and 118 agencies in the U.S.A. and Canada alone.



C.A.V. BPFCC single cylinder, flange-mounted fuel injection pump

C.A.V. AA type fuel injection pump with feed pump and mechanical governor

Typical C.A.V. fuel injection nozzle holders and pintle type nozzles

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ORCO has supplied quality rubber parts for the automotive industry for more than half a century. And, the parts above illustrate the scope of precision problems tackled—and solved on regular production basis—by Ohio Rubber.

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In the automotive industry—and many others—ORCO IDEA PARTS of rubber, synthetic rubber, silicone rubber, polyurethane, or flexible vinyl offer the original equipment manufacturer improved product performance, longer operating life. For more information on how ORCO "CUSTOMEERING" can go to work for you—write today to The Ohio Rubber Company, Willoughby, Ohio.

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working with

Du Pont ZYTEL® NYLON RESINS

one of Du Pont's versatile engineering materials

Why tubing of ZYTEL® offers unique property and cost advantages

The combination of properties offered by Du Pont ZYTEL nylon resins has led to an ever-increasing use of these engineering materials in the form of molded automotive parts. The properties which make molded components of ZYTEL so useful are also characteristic of tubing of ZYTEL. No other tubing material can provide the advantages offered by ZYTEL.

Low specific gravity (from 1.07 to 1.14) makes possible a significant weight saving over metallic tubing—particularly important in the light of today's automotive design trends.

Unlike other thermoplastics, ZYTEL couples with this low weight other necessary design properties, such as outstanding mechanical strength, flexibility, chemical resistance, fatigue endurance and resistance to high and low temperatures.

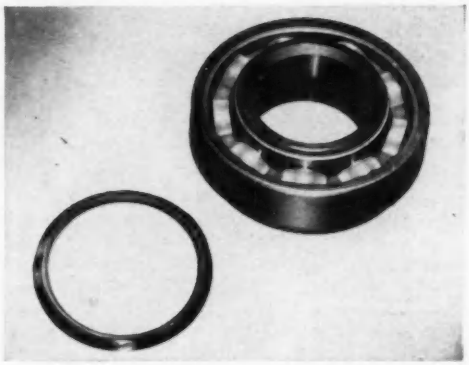
Successful commercial applications based on these properties include automatic lubricator tubing, air suspension tubing, vacuum spark lines, control and rotary cable liners.

• • •

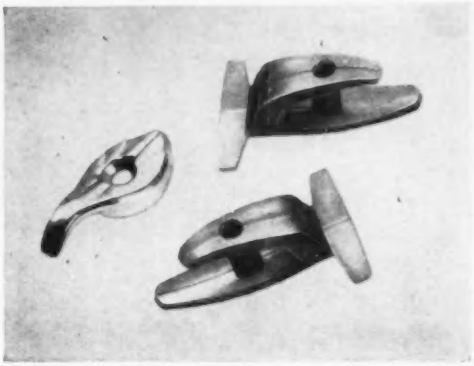
The booklet shown above will furnish you with detailed information on these various properties of ZYTEL in tubing applications, additional design information, and a discussion of suitable fittings, to help you evaluate tubing of ZYTEL for *your* application. For your copy, mail coupon on facing page.

Parts molded of ZYTEL® work better . . . cost less

in a variety of automotive applications



In this automotive rear-wheel bearing the felt seal and metal retainer, which were the primary causes of bearing failure, are now replaced by retainer and seal molded of Du Pont ZYTEL. The replacements result in improved performance at lower cost. (Produced by L & S Bearing Company, Oklahoma City, Oklahoma.)



In 1961 Rambler, clothes hangers of Du Pont ZYTEL® replace chrome-plated hangers. ZYTEL nylon furnishes the required strength and moldability. New hangers cost less, are more easily mounted and are color-keyed. (Molded by Evart Products Company, Evart, Michigan, for American Motors Corporation.)

The functional or decorative advantages of parts molded of ZYTEL nylon resins are often decisive in the choice of these materials to replace metals. Equally important are the economic advantages. Parts of ZYTEL are easily molded on a mass-production basis, require little or no finishing. And they frequently make possible additional savings through simplified one-piece design, lower assembly and installation costs. For more information about ZYTEL or about Du Pont's other versatile engineering materials, mail the coupon below.

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...THROUGH CHEMISTRY

ZYTEL® NYLON *resins*

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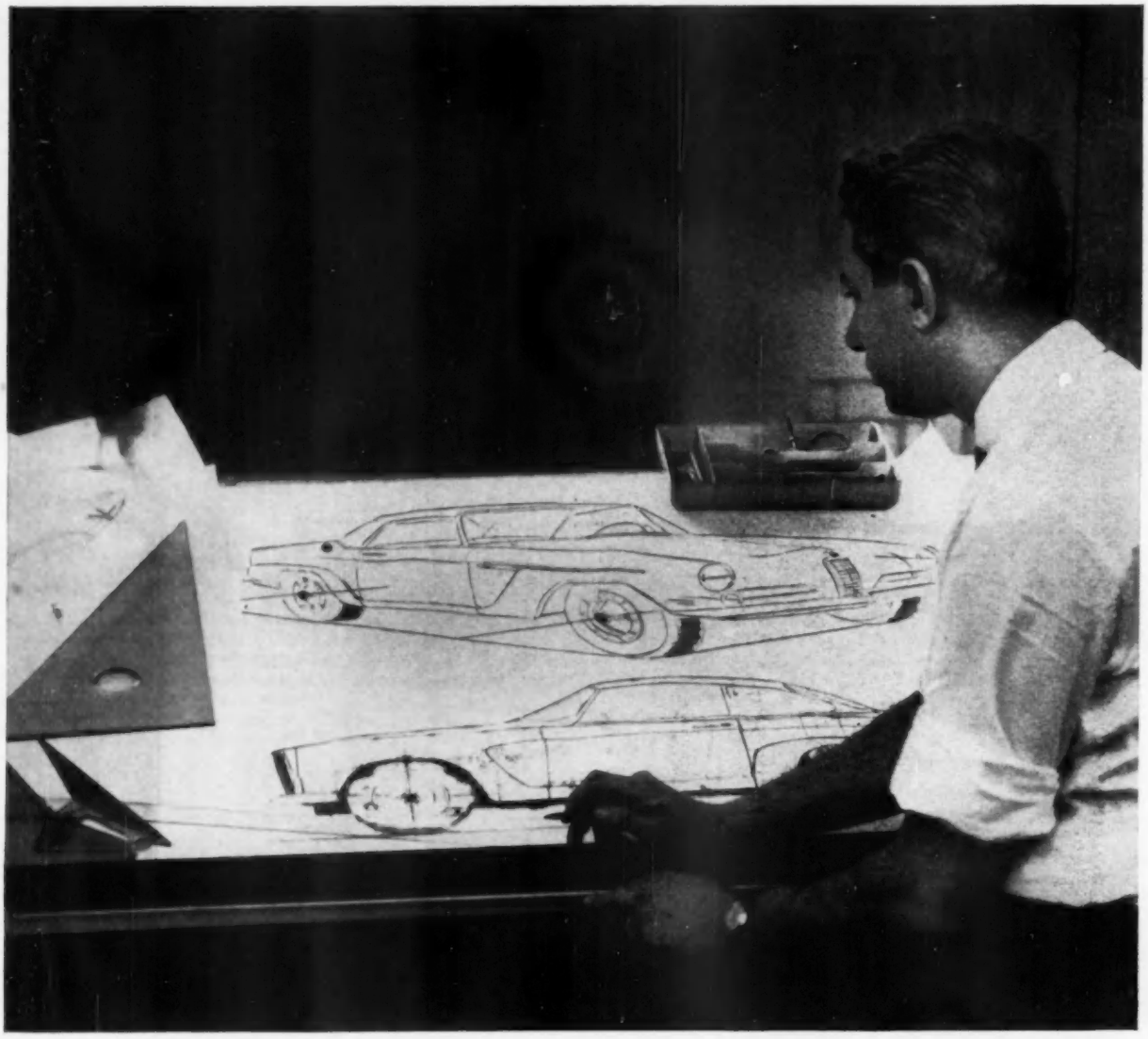
WHAT'S NEWS IN RUBBER



In design after design...the big switch is to BUTYL!

Automotive engineers have discovered that Enjay Butyl rubber is one of the best ways to improve car performance. Now all U.S. cars contain parts made from Enjay Butyl . . . parts such as weatherstripping, body mounts, engine mounts, radiator hose, accelerator pedals, and many more. Engineers specify Enjay Butyl rubber because...

- *Butyl resists weathering*
- *Butyl deadens noise and vibration*
- *Butyl absorbs shock*
- *Butyl beats the heat*
- *Butyl resists tear, flex and abrasion*

Enjay is always ready to help manufacturers build the extra performance of Butyl into their cars. For more information, contact Enjay's Detroit Area Office, 17360 West Eight Mile Road, Southfield, Mich. Phone KEnwood 2-7113.

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A DIVISION OF HUMBLE OIL & REFINING COMPANY

ENJAY® BUTYL

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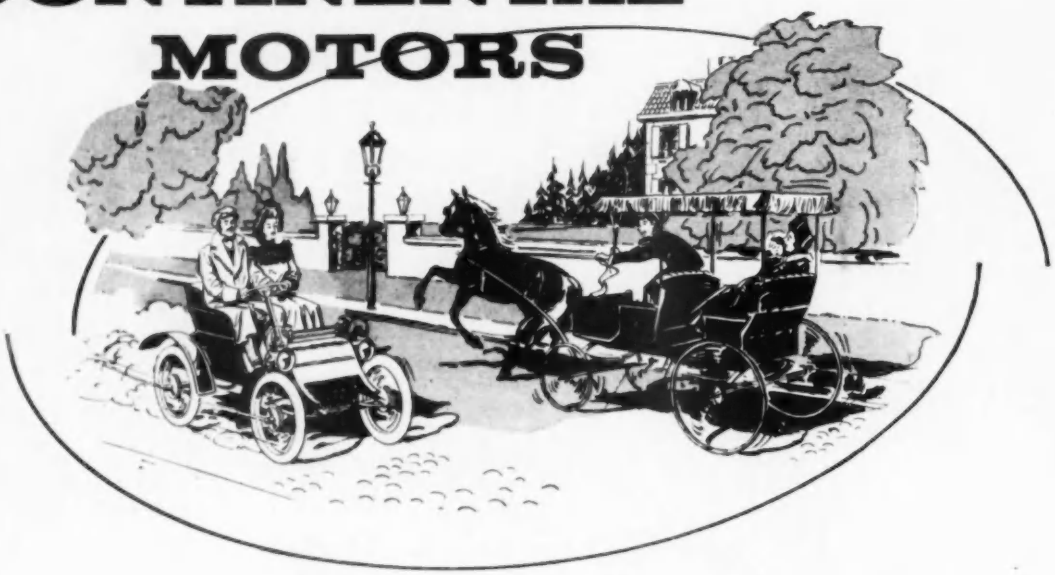
1961 AUTOMOTIVE INDUSTRIES STATISTICAL ISSUE

INTERNAL COMBUSTION ENGINES section

CONTINENTAL MOTORS



WIDENING THE HORIZONS OF THE INDUSTRY IT HELPED TO BUILD

For nearly 60 years, Continental Motors has been famous for dependable internal combustion power. Today, the company whose product once gave life to more than half of all cars on the road not only continues to serve the great industry it helped to establish, but serves it in ways equally vital to that industry's well-being and growth. More and more of the specialized machines speeding the nation's mammoth highway-building program are Continental-powered. Upwards of 100 basic models—gasoline, diesel, lpg—built to some 2,000 specifications, each engineered precisely to the requirements of its job, are building satisfaction and profit for their users and for the equipment manufacturers. Road contractors, construction companies, off-highway machinery users of all kinds, are finding it truer than ever:

• ALL EQUIPMENT IS BETTER WITH CONTINENTAL RED SEAL POWER •

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BUILD DEPENDABLE POWER FOR HUNDREDS OF SPECIALIZED APPLICATIONS, ON LAND, AT SEA, AND IN THE AIR

For complete Specifications of all Continental Engines See the Following Pages of this Issue: Aircraft, Page 190: Air-Cooled Industrial, Page 180: Agricultural-Industrial-Transportation, Including Diesel, Pages 162, 163, 164, 165, 172 and 173.

Continental Motors Corporation

CONTINENTAL MOTORS · Powerful as the Nation · AMERICA'S STANDARD ®

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1959 INTERNAL COMBUSTION ENGINE SHIPMENTS

(EXCEPT AUTOMOTIVE, AIRCRAFT, AND OUTBOARDS)

As reported by the Industry Division, Bureau of the Census

These data relate to engines designed primarily for use in generating power; oil and gas-field pumping; locomotives; agriculture machinery; tractors; power lawn mowers; inboard motor boats; air compressors; and similar applications.

Production of Internal Combustion Engines

Except Automotive and Aircraft

As reported by the Industry Division, Bureau of the Census

Year	Gasoline	Diesel & Semi-Diesel	Outboard	Gas	Total
1959	7,179,565	179,909	N.A.	15,375	7,374,849
1958	5,755,879	131,736	N.A.	14,429	5,902,544
1957	4,923,718	126,961	549,976	20,882	5,621,537
1956	5,883,349	140,814	641,527	20,472	6,686,162
1955	4,932,259	139,231	514,728	18,038	5,604,256
1954	3,669,505	104,686	479,350	10,691	4,264,232
1953	2,989,175	117,628	467,584	9,615	3,584,002
1952	2,945,050	120,538	337,419	18,801*	3,421,808
1951	3,103,551	129,203	291,697	28,072*	3,552,523
1950	2,458,274	98,955	367,173	125,850†	3,050,252
1947	2,140,516	100,183	584,458	59,566†	2,884,723

* Includes dual-fuel engines. Later years, dual-fuel engines are included with gasoline and Diesel engines.
† Includes miniature (model) engines. N.A. Not available.

Quantity and Value of Shipments by Type of Engines, by Years

Type of Engine	Total Engines Produced	Shipments* No. of Engines	Shipments* Value at Plant	Used in Product of Same Co.
1959				
Gasoline[2]	7,179,565	6,505,378	$246,530,000	674,187
Diesel	179,909	59,786	189,944,000	120,123
Gas	15,375	6,960[1]	47,228,000	8,415
Total—1959	7,374,849	6,572,124	$483,702,000	802,725
1958				
Gasoline[2]	5,755,879	5,124,994	$295,461,000	630,885
Diesel	131,736	44,291	$165,892,000	87,445
Gas	14,929	5,517[1]	31,458,000[1]	9,412
Total—1958	5,902,679	5,174,937	$492,811,000	727,742
1957				
Gasoline	4,923,718	4,136,318	$208,639,000	787,400
Diesel	126,961	58,133	241,310,000	68,828
Outboard	549,976	549,976	138,823,000	.....
Gas	20,882	7,407	55,561,000	13,475
Total—1957	5,621,537	4,751,834	$644,333,000	869,703
1956				
Gasoline	5,883,349	5,050,341	$233,735,000	833,008
Diesel	140,814	56,462	214,830,000	84,352
Outboard	641,527	641,527	150,388,000	.....
Gas	20,472	9,289	47,196,000	11,183
Total—1956	6,686,162	5,757,619	$646,149,000	928,543

[1] Includes interplant transfers. [2] Except outboard.

*—Shipments to "Other Companies" only.

1959 Gasoline Engine Shipments and Their Value, by Hp Rating

Hp. Ratings	Total Engines Produced	Total Shipments and Interplant Transfers: No. of Engines	Total Shipments and Interplant Transfers: Value at Plant	Shipments to Other Companies: No. of Engines	Shipments to Other Companies: Value at Plant	Interplant Transfers: No. of Engines	Interplant Transfers: Value at Plant	Number Used in Product of Same Co.
Under 3	3,594,840	3,447,450	$71,853,000					147,390
3.0-4.9	2,657,648	2,560,766	62,575,000					96,882
5.0-6.9	336,904	178,198	12,105,000	6,312,455	$164,193,000	41,375	$1,198,000	158,706
7.0-10.9	156,927	136,935	12,226,000					19,992
11.0-20.0	45,910	30,481	6,632,000					15,429
21-30	48,521	31,638	10,354,000					16,883
31-45	92,479	65,644	18,191,000	114,908	33,645,000	35,847	11,782,000	26,835
46-50	47,220	19,288	5,428,000					27,932
51-60	49,532	34,185	11,454,000					15,247
61-70		33,460	14,343,000	12,964	4,734,000	20,496	9,609,000	
71-80		16,636	7,704,000					
81-90		9,702	4,614,000					
91-100	149,584	18,276	6,843,000	65,051	43,971,000	28,743	14,592,000	22,330
101-150		22,461	12,651,000					
151-200		21,167	16,938,000					
201 and over		5,552	9,813,000					
Total—1959	7,179,565	6,631,839	$283,724,000	6,505,378	$246,543,000	126,461	$37,181,000	647,726

1959 Diesel Engine Shipments and Their Value, by Hp Rating

As reported by the Industry Division, Bureau of the Census

Hp. Ratings	Total Engines Produced	Total Shipments and Interplant Transfers: No. of Engines	Total Shipments and Interplant Transfers: Value at Plant	Shipments to Other Companies: No. of Engines	Shipments to Other Companies: Value at Plant	Interplant Transfers: No. of Engines	Interplant Transfers: Value at Plant	Number Used in Product of Same Co.
Under 20	19,949	1,585	$2,238,000	1,585	$2,238,000	.....	.....	5,156
21–30		49	65,000	49	65,000	.....	.....	
31–40		11,734	6,110,000					
41–50		1,425	1,359,000	31,502	32,030,000	49,501	$48,007,000	29,956
51–70	75,744	45,788	37,974,000					
71–100	36,265	22,056	34,594,000					14,209
101–150		15,973	38,137,000	15,780	47,369,000	6,152	14,838,000	
151–200		5,959	24,070,000					
201–300		11,619	48,874,000					
301–400		2,750	15,705,000					
401–500		1,248	17,707,000					
501–600	47,951	276	3,206,000					9,176
601–700		65	3,078,000	10,870	108,242,000	5,973	34,981,000	
701–800		210	10,670,000					
801–900		90	2,527,000					
901–1,000		49	2,971,000					
1001–1,500		236	11,981,000					
1,501 and over		300	26,504,000					
Total—1959	179,909	121,412	$287,770,000	59,786	$189,944,000	61,626	$97,826,000	58,497

1959 Gasoline Engine Shipments and Their Value, by Total Displacement*

As reported by the Industry Division, Bureau of the Census

Displacement Groupings	Total Engines Produced	Total Shipments and Interplant Transfers: No. of Engines	Total Shipments and Interplant Transfers: Value at Plant	Shipments to Other Companies: No. of Engines	Shipments to Other Companies: Value at Plant	Interplant Transfers: No. of Engines	Interplant Transfers: Value at Plant	Number Used in Product of Same Co.
Under 6 cu. in.	1,005,194	685,060	$ 15,203,000		$.....	.....	$.....	320,134
6.0–10.9 cu. in.	5,329,758	5,264,772	118,007,000					64,986
11–15 cu. in.	386,169	188,289	8,523,000					30,765
16–30 cu. in.		167,115	13,951,000	6,345,023	174,200,000	43,802	1,919,000	
31–50 cu. in.	62,261	18,203	3,197,000	.....	.....	.....	.....	12,045
51–75 cu. in.		32,013	6,919,000	.....	.....	.....	.....	
76–125 cu. in.	69,483	33,373	10,319,000	.....	.....	.....	.....	36,110
126–150 cu. in.	88,369	62,038	16,685,000	41,740	10,522,000	20,298	6,163,000	26,331
151–200 cu. in.	65,985	41,340	12,332,000	.....	.....	.....	.....	24,645
201–225 cu. in.		40,948	15,289,000					
226–250 cu. in.		40,230	18,272,000					
251–300 cu. in.		36,001	19,150,000					
301–350 cu. in.		11,906	8,873,000					
351–400 cu. in.	172,346	2,995	2,932,000	118,615	61,821,000	62,361	29,099,000	32,710
401–500 cu. in.		3,990	4,553,000					
501–600 cu. in.		1,501	1,840,000					
601–800 cu. in.		792	1,751,000					
801 cu. in. and over		1,273	5,928,000					
Total—1959	7,179,565	6,631,839	$283,724,000	6,505,378	$246,543,000	126,461	$37,181,000	547,726

1959 Diesel Engine Shipments and Their Value, by Total Displacement*

As reported by the Industry Division, Bureau of the Census

Displacement Groupings	Total Engines Produced	Total Shipments and Interplant Transfers: No. of Engines	Total Shipments and Interplant Transfers: Value at Plant	Shipments to Other Companies: No. of Engines	Shipments to Other Companies: Value at Plant	Interplant Transfers: No. of Engines	Interplant Transfers: Value at Plant	Number Used in Product of Same Co.
Under 150 cu. in.	92,391	14,819	$10,719,000	34,740	$40,273,000	39,171	$28,114,000	19,020
151–250 cu. in.		15,702	16,379,000					
251–300 cu. in.		43,390	41,289,000					
301–500 cu. in.	47,898	20,964	46,252,000	11,540	27,660,000	9,424	18,592,000	26,934
501–600 cu. in.	37,515	9,829	37,410,000	2,664	12,360,000	7,165	25,050,000	12,218
601–800 cu. in.		7,410	29,768,000					
801–1000 cu. in.		5,983	27,778,000					
1,001–1,500 cu. in.		2,075	19,340,000	10,867	86,949,000	5,866	26,070,000	
1,501–3,000 cu. in.		691	13,689,000					
3,001–5,000 cu. in.	1,565	199	11,617,000					325
5,001–10,000 cu. in.		195	10,827,000					
10,001 cu. in. and over		155	22,702,000	155	22,702,000	.....	.....	
Total—1959	179,909	121,412	$287,770,000	59,786	$189,944,000	61,626	$97,826,000	58,497

*—Excluding automotive, aircraft and outboard engines.

For Production of Gasoline and Diesel Engines by Number of Cylinders, see page 189

Shipments of Aircraft Engines, 1939-1960

Civil Engines from Industry Div., Bureau of the Census

Military Engines from Aerospace Industries Association

Year	Total	Civil	Military	
1939	11,172	N.A.	N.A.	
1940	30,167[1]	7,500	22,667	
1941	64,681[1]	6,500[1]	58,181	
1942	138,089	N.P.	138,089	
1943	227,116	N.P.	227,116	
			Piston	Jet
1944	256,911	N.P.	256,789	122
1945	111,650[1]	2,000	108,442	1,208
1946	43,407	40,822	1,680	905
1947	20,912	16,351	2,683	1,878
1948	14,027	9,039	2,495	2,493
1949	11,972	3,982	2,981	5,009
1950	13,675	4,314	3,122	6,239
1951	20,967	4,580	6,471	9,816
1952	31,041	5,382	8,731	16,928
1953	40,263	6,647	13,365	20,251
1954	26,959	5,519	7,868	13,572
1955	21,108	7,639	3,874	9,595
1956	21,869	11,499	2,982	7,388
1957	22,051	10,859	2,557	8,663
1958	18,252	10,233	1,496	6,523
1959	16,052[1]	11,152	600[1]	4,300[1]
1960	N.A.	10,891	N.A.	N.A.

N.P.—No production for civil use. [1]—Estimated.

Value of Net Sales— Aircraft Engines and Parts

(In Thousands of Dollars)

Industry Div., Bureau of the Census

Period	Type of Customer: U.S. Military	All Other	Total
9 Months—1960	$663,000	$317,000	$ 980,000
9 Months—1959	954,000	291,000	1,245,000
Years			
1959	$1,268,000	$408,000	$1,676,000
1958	1,858,000	321,000	2,179,000
1957	2,137,000	390,000	2,527,000
1956	1,718,000	317,000	2,035,000
1955	1,728,000	205,000	1,933,000
1954	1,872,000	190,000	2,062,000
1953	2,189,000	189,000	2,378,000
1952	1,440,000	169,000	1,609,000

Shipments of Civil Aircraft Piston Engines and Parts

In Units and Their Value

As reported by the Industry Division, Bureau of the Census

Month	Civil Aircraft Engines 1960 Number	1960 Value	1959 Number	1959 Value	Value of Engine Parts 1960	1959	Total Value Engines and Parts 1960	1959
January	1,025	$2,486,000	873	$2,635,000	$12,653,000	$10,398,000	$15,139,000	$17,774,000
February	1,039	2,639,000	954	2,729,000	13,521,000	10,011,000	16,160,000	18,889,000
March	1,141	3,210,000	921	2,612,000	13,177,000	12,634,000	16,387,000	18,999,000
April	1,064	2,483,000	947	2,728,000	12,330,000	11,681,000	14,813,000	17,541,000
May	894	2,266,000	921	2,276,000	12,188,000	10,481,000	14,454,000	16,730,000
June	772	1,757,000	979	2,668,000	10,056,000	11,817,000	11,813,000	14,481,000
July	579	1,671,000	844	2,043,000	10,628,000	13,713,000	12,299,000	14,342,000
August	873	2,269,000	747	1,701,000	7,382,000	7,289,000	9,651,000	11,352,000
September	864	2,370,000	804	2,237,000	11,188,000	12,663,000	13,558,000	15,795,000
October	862	2,356,000	1,051	3,897,000	9,484,000	13,595,000	11,840,000	15,737,000
November	(D)	(D)	1,060	4,319,000	10,523,000	12,190,000	.....	.....
December	(D)	(D)	1,051	3,550,000	14,431,000	8,561,000	.....	.....
Total	10,891*	$27,767,000*	11,152	$33,395,000	$137,560,000	$135,033,000	$165,327,000*	$198,722,000*

(D)—Withheld to avoid disclosure. *—Total for 12 months.

Civil Aircraft Engine Shipments by Total Rated Hp.

As reported by the Industry Division, Bureau of the Census

Month	1960 Number Shipped	1960 Total Hp	1960 Avg. Hp per Engine	1959 Number Shipped	1959 Total Hp	1959 Avg. Hp per Engine	1958 Number Shipped	1958 Total Hp	1958 Avg. Hp per Engine
January	1,025	217,300	212	873	196,200	225	1,033	468,900	454
February	1,039	227,300	219	954	206,700	217	1,139	518,200	455
March	1,141	262,100	230	921	197,700	215	994	440,700	443
April	1,064	219,800	207	947	205,100	217	881	428,000	486
May	894	188,300	211	921	183,300	204	828	338,300	409
June	772	145,800	189	979	202,000	206	783	328,700	420
July	579	121,600	210	844	166,600	197	730	282,100	386
August	873	178,300	204	747	154,000	206	693	210,000	303
September	864	180,800	209	804	168,900	210	757	214,000	283
October	862	179,200	208	1,051	257,000	245	811	220,900	272
November	(D)	(D)	...	1,060	285,600	269	786	198,600	253
December	(D)	(D)	...	1,051	289,900	276	798	201,700	253
Total	10,891*	2,284,100*	210*	11,152	2,513,000	226	10,233	3,850,100	376

(D) Withheld to avoid disclosure. * Totals for 12 months.

For Value of Backlog and Net New Orders of Aircraft Engines, see page 189.

GASOLINE ENGINES 1961

TRUCKS • BUSES • TRACTORS

Line Number	ENGINE MAKE AND MODEL	Designed for	Number of Cylinders, Bore and Stroke (In.)	MAXIMUM BRAKE Hp. at Specified R.P.M.		Piston Displacement (Cu. In.)	Compression Ratio	Maximum Torque at R.P.M. (Lb. Ft.) with or without Accessories	Cylinder Liners—Type	Crankcase—Upper Half Integral with Cylinders	VALVES								
				With Bare Engine	With Standard Accessories						Arrangement	Exhaust Head Material (S.A.E. No.)	Max. Head Diameter (In.)		Min. Port Diameter (In.)		Lift (In.)		Stem Diameter (In.)	
													Intake	Exhaust	Intake	Exhaust	Intake	Exhaust	Intake	Exhaust
1	Allis-Chalmers G-149	Ind	4-3 1/2x3 7/8		45-2000	149.0	7.50	129-1300	W	In	I	TP	1.44	1.31	1.26	1.14	.360	.360	.341	.341
2	G-226	Ind	4-4x4 1/2		67-1800	226.0	7.25	211-1100	W	In	I	TP	1.63	1.50	1.50	1.25	.360	.360	.371	.371
3	G-262	Tr	6-3 7/8x4 1/2	86-2200		262.0	8.00	230-1300 (BE)		In	I	CNS	1.51	1.28	1.38	1.12	.429	.429	.310	.310
4	G-138	Ind	4-3 5/8x3 7/8		39-1800	138.0	7.75	118-1200 (EA)	W	In	I	TP	1.44	1.31	1.26	1.14	.360	.360	.341	.341
5	Arnolt DDT	M	4-2 1/2x3 1/8		20.2-2900	61.9	5.80	38-2600 (EA)	N	Se	I	21-1	1.13	.938	1.00	.813	.228	.250	.313	.313
6	Brennan 20	Ind	4-2 1/2x3 1/4	20-3900	15-3900	50.0	7.40	34-3200 (EA)	N	Se	L	Sil	1.12	1.00	.875	.875	.250	.250	.312	.312
7	Imp.	M	4-2 1/2x3 1/8	35-5000	20-4000	50.0	7.40	34-3200 (EA)	N	Se	I	Sil	1.12	1.00	.875	.875	.250	.250	.312	.312
8	CE	Ind	4-4 1/8x5	54-1600	45-1600	318.0	5.00	203-1000 (EA)	N	Se	L	Sil	2.00	2.00	1.87	1.87	.375	.375	.375	.375
9	E-4	M	4-4 1/8x5	75-1600	45-1600	318.0	5.00	203-1000 (EA)	N	Se	L	Sil	2.00	2.00	1.87	1.87	.375	.375	.375	.375
10	B-70	T,B,Tr,Ind	6-4x5 1/2	90-2000	75-2000	415.0	4.50	278-900 (EA)	N	Se	I	Sil	2.12	2.12	2.00	2.00	.375	.375	.437	.437
11	100	M	6-4x5 1/2	94-2000	80-2000	415.0	6.00	278-900 (EA)	N	Se	I	Sil	2.12	2.12	2.00	2.00	.375	.375	.437	.437
12	B-100	T,B,Tr,Ind	6-4 1/8x5 1/2	94-2000	80-2000	496.0	4.50	350-1200 (EA)	N	Se	I	Sil	2.12	2.12	2.00	2.00	.375	.375	.437	.437
13	125	M	6-4 1/8x5 1/2	110-2200	94-2200	496.0	6.00	350-1200 (EA)	N	Se	I	Sil	2.12	2.12	2.00	2.00	.375	.375	.437	.437
14	150	M	6-4 1/8x6 1/2	250-2000	130-2000	620.3	6.00	500-1200 (EA)	N	Se	I	Sil	2.50	2.50	2.12	2.12	.437	.437	.500	.500
15	Imp	M	4-2 1/2x3 1/8	35-5000	35-5000	50.0	7.50	34-2000 (BE)	N	Se	L	Sil	1.12	1.00	.875	.875	.250	.250	.312	.312
16	B & W Lathrop 30	M	4-2 1/2x3	30-3500		58.0	7.10	39-2600	N	In	I		1.12	.996	1.06	.900	.255	.255	.310	.308
17	45	M	4-3 1/8x4		45-2800	133.0	5.50	92-1900 (EA)	N	In	L	CNS	1.50	1.38	1.25	1.25	.313	.313	.312	.312
18	60	M	4-3 1/8x4	60-3200		133.0	7.20	105-2400	N	In	L	CNS							.312	.312
19	105	M	6-3 5/8x4 1/2	105-3000		282.0			N	In	L	CNS			1.50	1.37				
20	135	M	6-4x4 1/2	135-3000		320.0	7.20	246-2000	N	In	L	CNS								
21	155	M	6-4x4 1/2	155-3400		339.0	7.20	284-2000	N	In	L	CNS								
22	Chevrolet Thriftmaster	T	6-3 7/16x3 1/16	135-4000	115-3800	235.5	8.25	217-2000 (BE)	N	In	I	HAS	1.88	1.50	1.44	1.28	.310	.310	.341	.341
23	Thriftmaster Special	T	6-3 7/16x3 1/16	135-4000	110-3600	235.5	8.25	217-2000 (BE)	N	In	I	HAS	1.88	1.50	1.44	1.28	.310	.310	.341	.341
24	Jobmaster	T,B,Tr	6-3 5/16x3 1/16	150-4000	130-3800	261.0	8.00	235-2000 (BE)	N	In	I	HAS+	1.88	1.50	1.44	1.28	.400	.400	.341	.341
25	Trademaster	T,B,Tr	6-3 7/16x3	160-4200	137-4000	283.0	8.50	270-2000 (BE)	N	In	I	HAS	1.72	1.50	1.50	1.32	.334	.334	.342	.341
26	Taskmaster	T,B,Tr	6-3 7/16x3	160-4200	137-4000	283.0	8.00	270-2000 (BE)	N	In	I	HAS+	1.72	1.50	1.50	1.32	.334	.334	.342	.341
27	Workmaster	T,Tr	8-4 1/8x3 1/16	230-4400	194-3800	348.0	7.75	335-2800 (BE)	N	In	I	HAS+	1.82	1.54	1.83	1.50	.400	.412	.371	.371
28	Workmaster Special	T,B,Tr	8-4 1/8x3 1/16	185-4000	160-3600	348.0	7.75	315-2200 (BE)	N	In	I	HAS	1.82	1.54	1.83	1.50	.400	.412	.371	.371
29	Turbo-Air	C,T	6-3 1/16x2 11/16	80-4400	65-3600	145.0	8.00	128-2300 (BE)	N	Se	I	HAS	1.34	1.24			.360	.360	.342	.341
30	Chris-Craft *B	M	4-3 1/16x4		60-3200	132.7	6.78	108-2400 (EA)	N	In	L	2112N	1.48	1.36	1.25	1.12	.312	.312	.310	.310
31	*"K	M	6-3 1/16x4 1/16		100-3200	229.7	7.21	173-1800 (EA)	N	In	L	2112N	1.64	1.48	1.50	1.25	.311	.311	.310	.310
32	*283	M	8-3 1/16x3		185-4000	283.0	8.00	261-3000 (EA)	N	In	I	21-4N	1.72	1.50	1.50	1.32	.269	.275	.342	.342
33	*430-H	M	8-4 11/16x3 11/16		275-4000	430.0	8.00	396-2900 (EA)	N	In	I	Aus	2.10	1.79	2.25	1.64	.222	.222	.371	.370
34	Chrysler M-46-4	M	6-3 1/16x4 5/8		95-3200	230.0	6.60	187-1400 (EA)	N	In	L	Sil	1.53	1.41	1.23	1.30	.379	.379	.340	.340
35	M-46-S-3	M	6-3 1/16x4 5/8		110-3600	230.0	7.00	190-1600 (EA)	N	In	L	Sil	1.53	1.41	1.23	1.30	.379	.379	.340	.340
36	M-47-3	M	6-3 1/16x4 3/4		125-3600	265.0	7.00	220-1600 (EA)	N	In	L	Sil	1.72	1.53	1.53	1.38	.410	.370	.340	.340
37	M-47-S-3	M	6-3 1/16x4 3/4		135-3600	265.0	7.00	225-2100 (EA)	N	In	L	Sil(x)	1.72	1.53	1.58	1.38	.410	.379	.340	.434
38	M-45-SP-3	M	6-3 11/16x3 5/8		275-4400	354.0	8.20	340-3900 (EA)	N	In	I	Sil*(y)	2.01	1.75	1.65	1.64	.444	.435	.373	.433
39	Ind. 30	Ind	6-3 1/16x4 5/8	99-3600	86-2400	230.0	7.00	190-1200 (BE)	N	In	L	CNS	1.53	1.40	1.40	1.29	.379	.379	.340	.340
40	Ind. 32	Ind	6-3 1/16x4 3/4	120-3600	79-2400	265.0	6.80	225-1200 (BE)	N	In	L	CNS	1.71	1.50	1.56	1.37	.379	.379	.341	.340
41	Ind. 54	Ind	8-3 5/16x3 1/16	173-4000	114-2800	315.0	7.50	265-2500 (BE)	N	In	I	CNS	1.76	1.40	1.63	1.29	.388	.375	.372	.433
42	Ind. 56A	Ind	8-3 11/16x3 5/8	188-4000	135-2800	354.0	7.50	332-2000 (BE)	N	In	I	CNS	2.01	1.76	1.82	1.63	.381	.357	.372	.372
43	M-80	M	8-3 11/16x3 7/8		177-3600	318.0	8.20	291-1600 (BE)	N	In	I	CNS	1.84	1.56	1.50	1.48	.390	.390	.373	.372
44	Ind. 31	Ind	6-3 1/16x4 5/8	99-3800	66-2400	230.0	7.00	190-1200 (BE)	N	In	L	CNS	1.53	1.40	1.40	1.29	.379	.379	.340	.340
45	Ind. 33	Ind	6-3 1/16x4 3/4	120-3600	79-2400	265.0	6.80	225-1200 (BE)	N	In	L	CNS	1.71	1.50	1.56	1.37	.379	.379	.341	.340
46	M-81	M	8-4 1/2x3		225-4000	361.0	8.00	224-2400	N	In	I	Sil*(y)	1.89	1.50	1.50	1.30	.407	.414	.373	.434
47	M-47-4	M	6-3 1/16x4 5/8		125-3600	265.0	7.00	220-1600 (EA)	N	In	L	Sil	1.72	1.53	1.53	1.38	.410	.370	.340	.340
48	H-170	Ind	6-3 1/16x3 1/16	104-4000	90-4000	170.0	8.20	150-1600 (BE)	N	In	I	HAS	1.62	1.36	1.61	1.33	.375	.368	.373	.372
49	H-225	Ind	6-3 1/16x4 1/16	120-4000	103-4000	225.0	8.20	204-1200 (BE)	N	In	I	HAS	1.62	1.36	1.61	1.33	.362	.368	.373	.372
50	H-318	Ind	8-3 11/16x3 7/16	187-4000	150-4000	318.0	8.25	270-2800 (BE)	N	In	I	HAS	1.84	1.56	1.83	1.51			.373	.372
51	H-361	Ind	8-4 1/16x3 5/16	210-4000	176-4000	361.0	8.00	325-2400 (BE)	N	In	I	HAS	2.09	1.61			.390	.390	.373	.372
52	H-383	Ind	8-4 1/16x3 5/8	226-4000	190-4000	383.0	8.00	342-2200 (BE)	N	In	I	HAS	2.09	1.61			.390	.390	.373	.372
53	H-413	Ind	8-4 3/16x3 5/8	248-4000	220-4000	413.0	8.00	384-2800 (BE)	N	In	I	HAS	2.09	1.61			.390	.390	.373	.372
54	HT-318	Ind	8-3 11/16x3 7/16	190-4000	162-4000	318.0	8.25	278-2800 (BE)	N	In	I	HAS	1.84	1.56	1.83	1.51			.373	.372
55	HT-361	Ind	8-4 1/16x3 5/16	200-4000	187-4000	361.0	7.50	335-2400 (BE)	N	In	I	Sil°	1.88	1.50					.373	.434
56	HT-413	Ind	8-4 3/16x3 5/8	215-4000	200-4000	413.0	7.50	372-2000 (BE)	N	In	I	Sil°	1.88	1.50					.373	.434
57	Climax R-165	Ind	6-6 1/16x7	192-1200	173-1200	1238.0	5.20	925-750 (BE)	N	Se	I	Sil	2.50	2.50	2.25	2.25	.500	.500	.560	.560
58	K-67	Ind	8-7x7	264-1200	250-1200	1616.0	5.20	1220-850 (BE)	W	Se	I	Sil	2.75	2.63	2.50	2.37	.687	.687	.560	.560
59	K-75	Ind	8-7 1/2x7	304-1200	280-1200	1855.0	5.56	1420-850 (BE)	W	Se	I	Sil	2.75	2.63	2.50	2.37	.687	.687	.560	.560
60	V-80	Ind	8-7x7	340-1200	320-1200	2155.0	5.20	1600-800 (BE)	W	Se	I	Sil	2.75	2.63	2.50	2.37	.687	.687	.560	.560
61	V-85	Ind	8-7 1/2x7	390-1200	370-1200	2474.0	5.56	1875-800 (BE)	W	Se	I	Sil	2.75	2.63	2.50	2.37	.687	.687	.560	.560
62	V-122	Ind	12-7x7	520-1200	490-1200	3232.0	5.20	2460-750 (BE)	W	Se	I	Sil	2.75	2.63	2.50	2.37	.687	.687	.560	.560
63	V-125	Ind	12-7 1/2x7	605-1200	570-1200	3711.0	5.56	2900-850 (BE)	W	Se	I	Sil	2.75	2.63	2.50	2.37	.687	.687	.560	.560
64	Continental N-4062	Tr	4-2 5/8x3 1/2	26.3-3500		62.0	6.60	41-2250 (BE)	N	In	L	Op	.895	.895	.750	.750	.187	.187	.314	.312
65	N-56	Ind	4-2 1/4x3 1/2	14.2-2200		56.0	6.80	39.5-1200 (BE)	W		L	Op	1.00	.895					.315	.313
66	N-62	Ind	4-2 5/8x3 1/2	15-2200		62.0	6.46	41.8-1200 (BE)	N	In	L	Op	.895	.895	.750	.750	.187	.187	.314	.312
67	Y-69	Ind	4-2 1/4x3 1/2	21.4-2400		69.0	6.60	48-2000 (BE)	N	In	L	Op	1.20	1.01	1.06	.875	.296	.281	.314	.313
68	Y-4069	Tr	4-2 1/4x3 1/2	28-3400		69.0		51-2000 (BE)	N	In	L	Op	1.20	1.01	1.06	.875	.296	.281	.314	.313
69	Y-91	Ind	4-2 7/8x3 1/2	29.5-2400		91.0	6.60	67-1600 (BE)	N	In	L	Op	1.20	1.01	1.06	.875	.296	.281	.314	.313
70	Y-4091	C,Tr	4-2 7/8x3 1/2	36-3400		91.0		70-1500 (BE)	N	In	L	Op	1.20	1.01	1.06	.875	.296	.281	.314	.313
71	E201	Ind	4-3 5/8x4 1/2	65.5-2400		201.0	6.30	171-1200 (BE)	W	In	I	Sil	1.45	1.36	1.16	1.19	.230	.230	.341	.339
72	F244	Ind	6-3 1/16x4 5/8	79-2400		244.0	6.90	192-1200 (BE)	N	In	L	XCR	1.52	1.21	1.38	1.19	.329	.334	.341	.339
73	J382	Ind	4-4 1/2x6	74.2-1400		382.0	5.82	283-1000 (BE)	W	In	I	Sil	1.77	1.66	1.63	1.50	.249	.249	.435	.433
74	Y-112	Ind	4-3 7/16x3 1/2	32-2400		112.0	6.60	82-1200 (BE)	N	In	L	Op	1.20	1.01	1.06	.875	.296	.281	.314	.313
75	F-124	Ind	4-3x4 5/8	36.5-2400		124.0	6.30	91-1200 (BE)	N	In	L	Op	1.51	1.20	1.37	1.18	.281	.281	.341	.334
76	F-4124	C,T,Tr	4-3x4 5/8	47-3200		124.0		94-1500 (BE)	N	In	L	Op	1.51	1.32	1.37	1.18	.281	.281	.341	.336
77	G-134	Ind	4-3 1/16x4 5/8	34-2000		134.0	6.60	107-1100 (BE)			I	Op								
78	F-140	Ind	4-3 5/16x4 5/8	42-2400		140.0	6.40	106-1200 (BE)	N	In	L	Op	1.51	1.20	1.37	1.18	.281	.281	.341	.337

For abbreviations, see pages 170 and 171

For Directory of the Engine Manufacturers listed above, see Page 53

MARINE • INDUSTRIAL

VALVES				PISTONS				CONNECTING RODS			CRANKSHAFT							CARBURETOR			OVERALL DIMENSIONS (In.)				
Seats													Crank-Pin	MAIN BEARINGS											
Angle (Deg.)	Inserts Used?	Insert Material (S.A.E. No.)	Camshaft Drive—Type	Material	Weight with Pins, Rings, Bushings (Oz.)	Piston Pin—Diameter and Length (In.)	Number of Rings per Piston	Material	Center to Center Length (In.)	Weight with Bushing and Cap (Oz.)	Material	Counter Balance Used	Diameter and Length (In.)	Number	Diameter and Length (In.) Front	Diameter and Length (In.) Rear	Oil Pressure to—	Make	Size	Engines Weight without Carburetor or Ignition (Lb.)	Width	Height	Length	Clutch Housing (S.A.E. Nos.)	Line Number
45	E	XB	HG	Al	.....	.813x2.88	4	1040	6½	.....	1045	....	1.94x1.22	3	2.75x1.25	2.75x1.50	abcdf	MaS	1	480	19⅝	39⅛	29¼	4	1
(h)	E	XB	HG	Al	.....	.990x3.51	4	1040	7½	.....	1045	....	2.38x1.44	3	3.00x1.25	3.00x1.25	abcdf	Zen	1	680	19⅝	45½	36⅛	4	2
45	E	4140	HG	Ala	2⅝	1.00x2.97	5	1035	7⅜	3	1035	....	2.00x1.50	7	2.50x1.25	2.50x1.75	abcdf	MaS	1¼	650	22¼	29½	39¼	4	3
45	E	Sil	HG	Al	.....	.813x2.88	4	1040	6½	.....	1045	....	1.94x1.22	3	2.75x1.25	2.75x1.50	acdf	Zen	⅞	392	17⅛	33⅛	27⅛	N	4
.....	Op	.....	SG	Al	.....	.625x2.13	3	1045	6	.....	1045	....	1.56x1.25	2	1.38x2.83	1.38x2.83	cdg	Zen	⅝	281	17⅛	18⅜	29¼	.....	5
45	N	.....	HG	Al	6	.625x2.00	3	1045	5¾	14	1045	Y	1.31x1.25	3	2.50x1.50	2.50x1.50	abcdg	Til	⅝	128	12¾	17⅝	18¾	.....	6
45	N	.....	HG	Al	6	.625x2.00	3	1045	5¾	14	1045	N	1.31x1.25	3	2.50x1.50	2.50x1.50	abcdg	Til	⅞	165	12¾	17⅝	29	.....	7
45	N	.....	HG	SS	80	1.17x4.00	4	1045	11	64	1045	N	2.50x2.50	3	2.50x4.25	2.50x3.50	abcdg	Str	1¼	608	21	29¾	37⅛	.....	8
45	N	.....	HG	SS	72	1.17x4.00	5	1045	11	64	1045	N	2.50x2.50	3	2.50x4.25	2.50x3.50	abcdfg	Str	1¼	950	16	18	53	.....	9
45	N	.....	HG	SS	64	1.17x3.87	4	CNS	11	65	CNS	N	2.50x2.00	3	2.75x4.50	2.75x3.00	acdg	Str	1½	808	25¾	33¾	49	.....	10
45	N	.....	HG	SS	64	1.17x3.87	4	AS	.....	.....	CNS	N	2.50x2.00	3	2.75x4.50	2.75x3.00	abcdfg	Str	1½	800	19¾	24¾	65	.....	11
45	N	.....	HG	SS	76	1.25x3.87	5	CNS	11	65	CNS	N	2.50x2.00	3	2.75x4.50	2.75x3.00	acdg	Str	1½	875	25¾	33¾	49	.....	12
45	N	.....	HG	SS	70	1.25x3.87	5	AS	11	65	CNS	N	2.50x2.00	3	2.75x4.50	2.75x4.50	abcdfg	Str	1½	900	19¾	24¾	65	.....	13
45	N	.....	BG	SS	72	1.37x4.00	5	AS	12	80	CNS	Y	2.62x2.67	7	2.62x5.00	2.63x3.50	abcd	Str	1¾	1450	20	30	74	.....	14
45	N	.....	HG	Al	6.0	.625x2.00	3	1045	5¾	14.0	1045	....	1.31x1.25	3	2.50x1.50	2.50x1.50	abcdfg	Til	¾	128	12¾	17⅝	28	.....	15
45	N	.....	Ch	Al	.....	.625x2.13	3	.....	5¾	.....	CNS	Y	1.63x.880	3	2.00x1.13	2.00x1.13	acfg	Zen	1	295	18½	24⅛	32	.....	16
30	N	.....	HG	Al	.....	.750x2.80	3	3140	6⅞	.....	4140	....	1.87x2.75	3	2.14x1.38	2.16x1.22	acg	Zen	1¼	490	21½	.....	33⅛	5	17
30	N	.....	HG	Al	.....	.750x2.80	3	AS	6⅞	.....	CNS	N	1.87x2.75	3	.....	.....	acg	Zen	1¼	440	18½	23	33⅛	5	18
.....	N	.....	HG	Al	40.0	1.00x3.50	4	DFS	8	36.0	CNS	....	2.00x1.50	7	2.50x1.31	2.50x2.12	abcdg	Zen	1⅝	876	.....	.....	.....	5	19
30	.....	.....	HG	Al	.....	1.00x3.50	4	DFS	8	30.0	Spec	....	2.00x1.50	7	2.50x1.31	2.50x2.12	acg	Zen	2	820	23	25¾	47	5	20
.....	.....	.....	HG	Al	40.0	1.00x3.50	4	DFS	8	36.0	CNS	Y	2.00x1.50	7	2.50x1.31	2.50x2.12	abcdg	Zen	2	916	23	25¾	47	5	21
(1)	N	.....	HG	Als	18.8	.868x3.19	3	DFS	6⅜	28	SF	....	2.31x1.25	4	2.69x1.06	2.78x1.17	abcdfgi	R-P	1½	608	22½	34½	41½	.....	22
(1)	N	.....	HG	Als	18.8	.868x3.19	3	DFS	6⅜	28	SF	....	2.31x1.25	4	2.69x1.06	2.78x1.17	abcdfgi	Car	1½	625	24½	26⅞	40½	.....	23
(1)	N	.....	HG	Als	22.8	.927x3.38	3	DFS	6⅜	31	SF	....	2.31x1.25	4	2.69x1.06	2.78x1.17	abcdfgi	R-P	1½	626	22½	34½	42½	.....	24
46	N	.....	Ch	Als	20.4	.927x3.01	3	DFS	5½	19	SF	....	2.00x1.90	5	2.30x.762	2.30x1.17	abcdfgi	R-P	1¼	607	32½	33½	36½	.....	25
46	N	.....	Ch	Als	23.0	.927x3.01	3	DFS	5½	19	SF	....	2.00x1.90	5	2.30x.762	2.30x1.17	abcdfgi	R-P	1¼	626	32½	33½	37½	.....	26
46	N	.....	Ch	Als	30.0	.990x3.26	3	DFS	6¼	24	SF	....	2.20x2.00	5	2.50x1.00	2.50x1.26	abcdfgi	R-P	1¼	802	29½	34½	41½	.....	27
46	N	.....	Ch	Als	30.0	.990x3.26	3	SF	6¼	.....	SF	....	2.20x2.00	5	2.50x1.00	2.50x1.26	abcdefi	R-P	1¼	810	29½	37½	41½	.....	28
45	Bo	(1)	SG	Al	15.9	.800x2.64	3	DFS	4½	13.7	DFS	....	1.80x.860	4	2.10x.799	2.10x.750	acdefg	R-P(2)	1¾	316	36½	29	17	.....	29
30	N	.....	HG	Alt	21	.750x2.83	3	3140	6⅞	22	DFS‡	N	1.75x1.12	3	1.98x1.62	1.98x1.37	acr	Zen	1¼	456*	24½	22½	31⅞	.....	30
30	N	.....	HG	Ala	25	.875x2.92	3	1035	7	29	DFS‡	N	1.98x1.25	7	2.49x1.53	2.49x1.15	acdr	Zen	1⅝	626*	24½	21⅝	40	.....	31
46	.....	.....	Ch	Alst	29	.927x3.00	3	C1037	5½	20	C1045	....	2.00x1.90	5	2.30x.69	2.30x.802	acdf	C-R	.....	663*	27⅜	26½	39¼	.....	32
45	N	.....	HG	Alt	48	.975x3.49	3	1041	6½	27	PNI	....	2.60x2.00	5	2.90x.955	2.90x.955	acdf	Car‡‡	.....	994*	36¼	23⅛	44⅛	.....	33
45	E	Eat	HG	Alt	15.7	.859x2.75	4	MS	7½	30.1	DFS	Y	2.06x1.25	4	2.50x1.88	2.50x1.24	acdg	Zen	1¼	743*	22½	25¼	43½	N	34
45	E	Eat	HG	Alt	15.7	.859x2.75	4	MS	7½	30.1	DFS	Y	2.06x1.25	4	2.50x1.88	2.50x1.24	acdg	Zen	1½	751*	22½	28½	43½	N	35
45	E	Eat	HG	Alt	25.0	.859x2.88	3	MS	7.875	32.4	DFS	Y	2.12x1.22	4	2.50x1.88	2.50x1.24	acdg	Zen	1½	814*	22½	26⅛	45⅞	N	36
45	E	Eat	HG	Alt	25.0	.859x2.88	3	MS	7.875	32.4	DFS	Y	2.12x1.22	4	2.50x1.88	2.50x1.24	acdg	Zen(2)	1½	822*	28	26⅛	45⅞	N	37
45	E	Eat	HG	Alst	23.3**	.984x3.15	3	MA	6⅝	25.2	DFS	Y	2.25x2.00	5	2.50x1.88	2.50x1.13	acdef	Car(2‡‡	1¼	1071*	32½	30¼	45½	N	38
45	E	Sil	Ch	CI	.....	.859x2.75	4	1041	7½	.....	1046	....	2.06x1.25	4	2.50x1.23	2.50x1.58	acd	Car	1⅛	575	20½	32	32⅛	3,4	39
45	E	Ste	Ch	CI	.....	.859x2.87	4	1041	7¾	.....	1046	....	2.13x1.38	4	2.50x1.55	2.50x1.58	acd	Car	1⅛	740	20⅝	32⅛	34⅛	3,4	40
45	E	Eat	Ch	Al	.....	.920x3.06	3	1041	6⅝	.....	1046	....	2.25x1.81	5	2.50x.837	2.50x1.56	acdf	Str	1⅛	591	29¾	30	31⅛	3	41
45	E	Eat	Ch	Al	.....	.980x3.14	3	1041	6⅝	.....	1046	....	2.25x2.00	5	2.50x.910	2.50x1.62	acdf	Str	1⅛	855	28⅛	35⅛	33⅝	3	42
45	N	.....	Ch	Alst	21**	.984x3.00	3	MA	6⅛	25.6	DFS	....	2.13x1.88	5	2.50x1.56	2.50x.872	acdfg	Car (2)	1¼	898*	27½	24⅞	39⅛	N	43
45	E	Sil	HG	CI	.....	.859x2.75	4	1041	7½	.....	1046	....	2.06x1.25	4	2.50x1.23	2.50x1.58	acd	Car	1⅛	610	20½	32⅛	31⅛	3,4	44
45	E	Ste	HG	CI	.....	.859x2.87	4	1041	7¾	.....	1046	....	2.13x1.38	4	2.50x1.55	2.50x1.58	acd	Car	1⅛	760	20⅝	32⅛	33⅛	3,4	45
45	E	Eat	HG	Alst	.....	1.09x3.45	3	1041	6¾	35.2	DFS	....	2.37x2.05	5	2.62x1.16	2.62x1.14	acdfg	Car(2)	1¼	960*	27⅞	25⅛	44⅛	N	46
45	E	Eat	HG	Alt	25.0	.859x2.88	3	MS	7⅞	32.4	DFS	Y	2.12x1.22	4	2.50x1.88	2.50x1.24	acdg	Zen	1½	814*	22½	25⅝	45⅛	N	47
(2)	N	.....	Ch	Alst	16.8	.900x2.97	3	1041	5½	.....	1046	....	2.58x1.22	4	2.75x1.03	2.75x1.03	acdfg	Car	1½	410	18½	23⅞	33½	4	48
(2)	N	.....	Ch	Alst	16.8	.900x2.97	3	1041	6½	.....	1046	....	2.58x1.22	4	2.75x1.03	2.75x1.03	acdfg	Car	1½	460	19½	27½	33½	4	49
45	N	.....	Ch	Alst	20.9	.984x3.00	3	1041	6¼	.....	1046	....	2.56x1.88	5	2.50x.852	2.50x1.54	acdfg	Str	1¼	535	29¾	28½	31⅞	3,4	50
45	N	.....	Ch	Alst	37.9	1.09x3.57	3	1041	6½	30.6	1046	....	2.38x2.05	5	2.63x.944	2.63x.944	acdf	S-C	(3)	567	29½	26½	33½	2,3	51
45	N	.....	Ch	Alst	37.9	1.09x3.57	3	1041	6½	30.6	1046	....	2.38x2.05	5	2.63x.944	2.63x.944	acdf	S-C	(3)	574	29½	26½	33½	2,3	52
45	N	.....	Ch	Alst	38.2	1.09x3.57	3	1041	6½	31.6	1046	....	2.38x2.05	5	2.75x.944	2.75x.944	acdf	Car	1½	583	29½	27½	33½	2,3	53
45	N	.....	Ch	Als	20.9	.984x3.00	3	1041	6¼	.....	1046	....	2.56x1.88	5	2.50x.852	2.50x1.54	acdfg	.....	.....	535	29¾	28½	31⅞	3,4	54
45	E	Eat	HG	Alst	27.4	1.09x3.45	3	1041	6½	.....	1046	....	2.81x2.05	5	2.62x.924	2.62x.924	acdfg	.....	1¼	695	22½	28½	33½	2,3,4	55
45	E	Eat	HG	Alst	29.0	1.09x3.57	3	1041	6½	.....	1046	....	2.81x2.05	5	2.75x.924	2.75x.924	acdfg	.....	.....	715	24⅞	29	33½	2,3	56
45	E	Eat	HG	Al	164	1.49x5.37	4	3135	16	207.0	4140	....	3.00x3.50	4	3.25x3.81	3.25x4.50	acdefg	Zen(2)	1¾	3200	29½	51⅝	73½	1.0	57
45	E	Eat	HG	Al	253.0	2.00x5.75	5	1040	16	284.0	4140	N	4.00x2.88	7	4.50x3.75	4.50x3.75	abcdfg	Zen	2½	5400	33	57	77½	0	58
45	E	Eat	HG	Al	286.0	2.00x6.25	5	1040	16	284.0	4140	N	4.00x2.88	7	4.50x3.75	4.50x3.75	abcdfg	Zen	2½	5600	33	57	77½	0	59
45	E	Eat	HG	Al	253.0	2.00x5.75	5	1040	16	292.0	4140	N	4.00x5.00	5	4.50x3.75	4.50x5.50	abcdfg	Zen(2)	2	8200	51	58	72¼	00	60
45	E	Eat	HG	Al	286.0	2.00x6.25	5	1040	16	292.0	4140	N	4.00x5.00	5	4.50x3.75	4.50x5.50	abcdfg	Zen(2)	2	8400	51	58	72¼	00	61
45	E	Eat	HG	Al	221.0	2.38x5.75	5	1040	16	289.0	4140	N	4.75x5.25	7	5.50x3.75	5.50x5.00	abcdfg	Zen(2)	2½	11200	51	58	95	00	62
45	E	Eat	HG	Al	286.0	2.38x6.25	5	1040	16	289.0	4140	N	4.75x5.25	7	5.50x3.75	5.50x5.00	abcdfg	Zen(2)	2½	11600	51	58½	95	00	63
(h)	E	SA	HG	CI	.....	.543x1.92	3	1035	5¾	.....	DFS	N	1.50x1.02	....	2.00x....	2.00x1.25	.....	.....	.....	170	16	19	19	5	64
(h)	E	SA	HG	Al	.....	.543x1.92	3	1035	5¾	.....	DFS	N	1.50x1.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	65
(h)	Op	SA	HG	CI	.....	.543x1.92	3	1035	5¾	.....	DFS	N	1.50x1.00	.....	2.00x1.39	2.00x1.25	.....	Op	Op	170	16	19	19	5	66
(h)	Op	SA	HG	CI	.....	.708x2.06	3	1030	5¾	.....	DFS	N	1.50x1.18	3	1.75x1.37	1.75x1.78	acdgt	Op	Op	265	14⅞	22½	25½	5	67
(h)	Op	SA	HG	CI	.....	.703x2.06	3	1030	5¾	.....	DFS	N	1.50x1.18	3	1.75x1.37	1.75x1.78	acdgt	Op	Op	290	14⅞	22½	25½	5	68
(h)	Op	SA	HG	CI	.....	.708x2.44	3	1030	5¾	.....	DFS	N	1.50x1.18	3	1.75x1.37	1.75x1.78	acdgt	Op	Op	265	14⅞	22½	25½	5	69
(h)	Op	SA	HG	CI	.....	.703x2.44	3	1030	5¾	.....	DFS	N	1.50x1.18	3	1.75x1.37	1.75x1.78	acdgt	Op	Op	290	14⅞	22½	25½	5	70
(h)	E	SA	HG	Al	.....	1.10x3.06	4	1035	8⅝	.....	1046	....	2.25x1.56	3	2.81x1.34	2.81x1.56	acdfg	Op	.....	540	.....	.....	.....	N	71
(h)	E	SA	HG	Al	.....	.658x2.88	4	1035	7¼	.....	1045	....	2.06x1.31	4	2.56x1.06	2.56x1.48	acd	Op	.....	.....	.....	.....	.....	4	72
(h)	E	SA	HG	Al	.....	1.50x3.72	4	1035	10½	.....	1045	....	2.75x1.81	4	3.50x1.88	3.50x2.00	afg	Op	.....	830	.....	.....	.....	N	73
(h)	Op	SA	HG	CI	.....	.708x2.75	3	1030	5¾	.....	DFS	N	1.50x1.18	3	1.75x1.28	1.75x1.65	acdgt	Op	Op	265	14⅞	22½	25½	5	74
(h)	Op	SA	HG	CI	.....	.859x2.50	4	1030	7	.....	DFS	N	1.93x1.31	3	2.25x1.18	2.25x1.89	acdgt	Op	Op	370	15¾	26½	29⅛	4	75
(h)	Op	SA	HG	CI	.....	.859x2.50	4	1030	7	.....	DFS	N	1.93x1.31	3	2.25x1.18	2.25x1.89	acdgt	Op	Op	395	26	26½	29⅛	4,3	76
.....	E	SA	HG	Al	.....	.....	.....	1035	7	.....	DFS	N	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	77
(h)	Op	SA	HG	CI	.....	.859x2.68	4	1030	7	.....	DFS	N	1.93x1.31	3	2.25x1.18	2.25x1.89	acdgt	Op	Op	370	26	26½	29⅛	4	78

For abbreviations, see pages 170 and 171

For Directory of the Engine Manufacturers listed above, see Page 53

1961 GASOLINE ENGINES FOR TRUCK, BUS,

Line Number	ENGINE MAKE AND MODEL	Designed for	Number of Cylinders, Bore and Stroke (In.)	MAXIMUM BRAKE Hp. at Specified R.P.M.		Piston Displacement (Cu. In.)	Compression Ratio	Maximum Torque at R.P.M. (Lb. Ft.) with or without Accessories	Cylinder Liners—Type	Crankcase—Upper Half Integral with Cylinders	VALVES									
				With Bare Engine	With Standard Accessories						Arrangement	Exhaust Head Material (S.A.E. No.)	Max. Head Diameter (In.)		Min. Port Diameter (In.)		Lift (In.)		Stem Diameter (In.)	
													Intake	Exhaust	Intake	Exhaust	Intake	Exhaust	Intake	Exhaust
1	Continental—(Cont.) F-4140	C,T,Tr	4-3 1/8x4 5/8	52-3200		140.0		108-1600 (BE)	N	In	L	Op	1.61	1.32	1.37	1.18	.281	.281	.341	.339
2	G-157	Ind	4-3 5/8x4 5/8	40-2000		157.0		124-1100 (BE)	W	In	I	Op	1.32	1.20	1.19	1.09	.312	.312	.341	.339
3	F-162	Ind	4-3 1/8x4 5/8	49-2400		162.0	6.40	124-1200 (BE)	N	In	L	Op	1.51	1.20	1.37	1.18	.281	.281	.341	.337
4	F-4162	C,T,Tr	4-3 1/8x4 5/8	58-3200		162.0		122-1500 (BE)	N	In	L	Op	1.51	1.20	1.37	1.18	.281	.281	.341	.337
5	H-227	Ind	4-3 5/8x5 1/2	54-1800		227.0	5.05	198-1000 (BE)	W	In	I	Op	1.64	1.45	1.50	1.31	.343	.343	.437	.439
6	H-243	Ind	4-3 3/4x5 1/2	57.8-1800		243.0	5.05	213-1000 (BE)	W	In	I	Op	1.64	1.45	1.50	1.31	.343	.343	.437	.437
7	H-260	Ind	4-3 7/8x5 1/2	62-1800		260.0		226-1100 (BE)	W	In	I	Op	1.64	1.45	1.50	1.31	.343	.343	.437	.437
8	F-186	Ind	6-3x4 5/8	60.5-2400		186.0		147-1200 (BE)	N	In	L	Op	1.51	1.32	1.37	1.18	.296	.296	.341	.337
9	F-6186	C,T,Tr	6-3x4 5/8	77-3500		186.0	6.70	142-1600 (BE)	N	In	L	Op	1.51	1.32	1.37	1.18	.296	.281	.341	.337
10	F-209	Ind	6-3 1/8x4 5/8	68-2400		209.0		165-1200 (BE)	N	In	L	Op	1.51	1.20	1.37	1.18	.296	.296	.341	.337
11	F-6209	C,T,Tr	6-3 1/8x4 5/8	90-3500		209.0	6.70	160-1500 (BE)	N	In	L	Op	1.51	1.32	1.37	1.18	.296	.281	.341	.339
12	F-226	Ind	6-3 1/8x4 5/8	73-2400		226.0		178-1200 (BE)	N	In	L	Op	1.51	1.32	1.37	1.18	.296	.296	.341	.338
13	F-6226	C,T,Tr	6-3 1/8x4 5/8	99-3500		226.0	6.70	180-1500 (BE)	N	In	L	Op	1.51	1.32	1.37	1.18	.296	.281	.341	.338
14	M-271	Ind	6-3 5/8x4 5/8	88.2-2400		271.0		206-1000 (BE)	N	In	L	Op	1.76	1.51	1.62	1.37	.343	.359	.403	.401
15	M-6271	T,B,Tr	6-3 5/8x4 5/8	97-3000		271.0	6.70	209-1400 (BE)	N	In	L	Op	1.76	1.51	1.62	1.37	.343	.359	.404	.402
16	M-290	Ind	6-3 3/4x4 5/8	92.2-2400		290.0		221-1000 (BE)	N	In	L	Op	1.76	1.51	1.62	1.37	.343	.359	.404	.401
17	M-6290	T,B,Tr	6-3 3/4x4 5/8	108-3000		290.0	6.70	226-1400 (BE)	N	In	L	Op	1.76	1.51	1.62	1.37	.343	.359	.404	.402
18	M-330	Ind	6-4x4 5/8	104.4-2400		330.0		251-1100 (BE)	N	In	L	Op	1.76	1.51	1.62	1.37	.343	.343	.404	.402
19	M-6330	T,B,Tr	6-4x4 5/8	125-3000		330.0	6.70	258-1400 (BE)	N	In	L	Op	1.76	1.51	1.62	1.37	.343	.359	.404	.402
20	B-371	Ind	6-4 1/8x4 5/8	110-2400		371.0	6.60	280-1000 (BE)	N	In	L	Op	1.89	1.64	1.75	1.50	.359	.359	.435	.432
21	B-6371	T,B	6-4 1/8x4 5/8	123.5-3000		371.0	6.50	285-1200 (BE)	N	In	L	Op	1.89	1.64	1.75	1.50	.389	.359	.435	.432
22	T-6371	T	6-4 1/8x4 5/8	144-3000		371.0	6.40	297-1400 (BE)	N	In	I	Op	2.08	1.64	1.87	1.50	.460	.406	.437	.432
23	T-371	Ind	6-4 1/8x4 5/8	119-2400		371.0	6.36	286-1200 (BE)	N	In	I	Op	2.08	1.64	1.87	1.50	.460	.406	.437	.432
24	T-427	Ind	6-4 1/4x4 7/8	140-2400		427.0	6.36	335-1000 (BE)	N	In	I	Op	2.08	1.64	1.87	1.50	.460	.406	.437	.432
25	B-427	Ind	6-4 1/4x4 7/8	127-2400		427.0	6.60	322-1000 (BE)	N	In	L	Op	1.89	1.64	1.75	1.50	.389	.359	.435	.437
26	B-6427	T,B,M	6-4 1/4x4 7/8	142-3000		427.0	6.50	327-1200 (BE)	N	In	L	Op	1.89	1.64	1.75	1.50	.359	.359	.435	.432
27	T-6427	T	6-4 1/4x4 7/8	170-3000		427.0	6.40	350-1300 (BE)	N	In	I	Op	2.08	1.64	1.87	1.50	.460	.406	.437	.432
28	U-501	Ind	6-4 1/2x5 1/4	160-2400		501.0		384-1200 (BE)	N	In	I	Op	2.14	1.87	2.00	1.63	.374	.374	.435	.432
29	U-6501	T,B,Ind	6-4 1/2x5 1/4	186-2600		501.0	6.20	412-1400 (BE)	N	In	I	Op	2.14	1.87	2.00	1.63	.374	.374	.435	.432
30	R-513	Ind	6-4 1/2x5 5/8	164.3-2400		513.0	5.95	392-1400 (BE)	N	In	I	Op	2.14	1.89	2.00	1.75	.500	.500	.500	.493
31	R-6513	T,B	6-4 1/2x5 5/8	192-2800		513.0	6.00	420-1200 (BE)	N	In	I	Op	2.14	1.89	1.81	1.75	.500	.500	.500	.498
32	R-572	Ind	6-4 3/4x5 5/8	182.4-2400		572.0	5.97	437-1400 (BE)	N	In	I	Op	2.14	1.89	2.00	1.75	.500	.500	.500	.498
33	R-6572	T,B	6-4 3/4x5 5/8	220-2800		572.0	6.00	464-1200 (BE)	N	In	I	Op	2.14	1.89	2.00	1.75	.500	.500	.500	.495
34	R-602	Ind	6-4 7/8x5 5/8	192-2400		602.0	6.00	460-1200 (BE)	N	In	I	Op	2.14	1.89	2.00	1.75	.500	.500	.500	.495
35	R-6602	T,B	6-4 7/8x5 5/8	232-2800		602.0	6.00	482-1200 (BE)	N	In	I	Op	2.14	1.89	2.00	1.75	.500	.500	.500	.498
36	S-749	Ind	6-5 1/8x5 1/2	217-2200		749.0		572-1000 (BE)	N	In	I	Op	2.39	2.14	2.25	2.00	.562	.562	.497	.496
37	S-6749	T	6-5 1/8x5 1/2	250-2800		749.0		575-1300 (BE)	N	In	I	Op	2.39	2.14	2.25	2.00	.562	.562	.497	.494
38	K-6271	T	6-3 5/8x4 5/8	115-3200		271.0	6.40	216-1400 (BE)	N	In	I	Op	1.99	1.64	1.78	1.56	.443	.406	.435	.432
39	K-6290	T	6-3 3/4x4 5/8	123-3200		290.0	6.40	232-1400 (BE)	N	In	I	Op	1.99	1.64	1.78	1.56	.443	.406	.435	.432
40	K-6330	T	6-4x4 5/8	147-3200		330.0	6.40	267-2000 (BE)	N	In	I	Op	1.99	1.64	1.78	1.56	.443	.406	.435	.432
41	S-6820	T	6-5 1/8x5 1/2	300-2800		820.0		652-1600 (BE)	N	In	I	Op	2.39	2.14	2.25	2.00	.562	.562	.497	.495
42	V-603	Ind	8-4 1/8x4 1/2	240-2800		603.0	7.00	504-1600 (BE)	N	In	I	Aus	2.41	2.02	2.25	1.88	.512	.505	.500	.500
43	V-6603	T,B	8-4 1/8x4 1/2	260-3200		603.0	7.00	512-2000 (BE)	N	In	I	Aus	2.41	2.02	2.25	1.88	.512	.505	.500	.500
44	S-820	Ind	8-5 1/8x5 1/2	237-2200		820.0		625-1000 (BE)	N	In	I	Op	2.39	2.14	2.25	2.00	.562	.562	.497	.495
45	H-277	Ind	4-4x5 1/2	68.4-1800		277.0	6.25	242-1000 (BE)	W	In	I	Op	1.64	1.45	1.50	1.31	.343	.343	.437	.437
46	M-383	Ind	8-4x4	129-2800		383.0	6.70	294-1400 (BE)	N	In	L	Op	1.76	1.51	1.62	1.37	.343	.343	.404	.402
47	M-6383	T,B	8-4x4	146-3000		383.0	6.70	304-1600 (BE)	N	In	L	Op	1.76	1.51	1.62	1.37	.343	.343	.404	.402
48	K-383	Ind	8-4x4	123-2400		383.0	6.50	295-1400 (BE)	N	In	I	Op	1.99	1.65	1.78	1.56	.468	.441	.435	.432
49	K-6383	T,B	8-4x4	162-3200		383.0	6.50	300-2000 (BE)	N	In	I	Op	1.99	1.65	1.78	1.56	.468	.441	.435	.432
50	FO-6226	C,T,B	6-3 1/8x4 5/8	143-4500		226.0	8.00	212-2000 (BE)	N	In	I	Op	1.78	1.43	1.63	1.31	.409	.409	.341	.339
51	Z-129	Ind	4-3 1/8x3 7/8	35-2000		129.0	6.50	107-1100 (BE)	W	In	I	Op	1.26	1.14	1.50	1.50	.344	.344	.314	.313
52	G-193	Ind	4-3 5/8x4 5/8	59-2000		193.0	7.00	168-1200 (BE)	N	In	I	Op	1.64	1.38	1.50	1.33	.380	.380	.341	.339
53	G-4193		4-3 5/8x4 5/8	77-3500		193.0		172-1600 (BE)	N	In	I	Op	1.64	1.38	1.50	1.33	.380	.380	.341	.339
54	E-208	Ind	4-3 1/2x4 7/8	68-2400		208.0		177-1200 (RE)	W	In	I	Op	1.45	1.36	1.31	1.19	.317	.317	.341	.339
55	E-223	Ind	4-3 1/2x4 7/8	72-2000		223.0		202-1300 (BE)	W	In	I	Op	1.45	1.36	1.31	1.19	.317	.317	.341	.339
56	F-6244	T,Ind	6-3 1/8x4 5/8	105-3750		244.0	7.30	197-1600 (BE)	N	In	L	Op	1.52	1.20	1.38	1.13	.348	.331	.341	.338
57	J-403	Ind	4-4 5/8x6	110-2000		403.0	5.82	324-1200 (BE)	W	In	I	Op	1.77	1.64	1.50	1.50	.352	.352	.435	.432
58	Crusader 170	M	8-3 7/8x3		170-3800	283.0	7.80	240-2600 (EA)	D	In	I	CNS	1.70	1.50					.344	.344
59	230	M	8-3 7/8x3		230-4400	283.0	9.50	298-3200 (EA)	D	In	I	CNS	1.70	1.50					.344	.344
60	275	M	8-4x3 1/4		275-4000	390.0	8.80	394-3400 (EA)	D	In	I	CNS	1.88	1.50			.450	.450	.342	.342
61	300	M	8-4x3 1/4		300-4400	390.0	8.80	390-3500 (EA)	D	In	I	CNS	1.88	1.50			.450	.450	.342	.342
62	325	M	8-4x3 1/4		325-4800	390.0	9.50	396-3600 (EA)	D	In	I	CNS	1.88	1.50			.450	.450	.342	.342
63	200	M	8-3 7/8x3		200-4200	283.0	7.80	274-3000 (EA)	D	In	I	CNS	1.70	1.50					.344	.344
64	Dodge D400, 500; P400; S400, 500; W300, 500; WM300	T	6-3 7/8x4 1/2	125-3600	115-3600	250.6	7.10	216-1600	N	In	L	21-4N	1.72	1.50			.379	.379	.341	.340
65	D100, 200, 300; W100, 200	T	8-3 7/16x3 7/8	200-3900	164-3900	318.1	8.25	286-2400	N	In	I	21-4N	1.84	1.56			.380	.380	.372	.371
66	D400, 500, 600; C500; S400, 500, 600; W300, 500	T	8-3 7/16x3 7/8	202-3900	165-3900	318.1	8.25	268-2400	N	In	I	21-4N	1.84	1.56			.381	.381	.372	.371
67	C600 Std.; D500, 600; C500; S500, 600 Opt.	T	8-4 1/16x3 5/8	178-3600	165-3600	360.5	7.50	291-2400	N	In	I	Sil(y)	1.88	1.50			.360	.360	.372	.433
68	D700, C700, CT700	T	8-4 1/16x3 5/8	194-3600	181-3600	360.5	7.50	310-2400	N	In	I	Sil(y)	1.88	1.50			.360	.360	.372	.433
69	C800,CT800Std.; CT700Opt.	T	8-4 1/16x3 5/8	204-3600	186-3600	360.5	7.50	335-2400	N	In	I	Sil(y)	1.88	1.50			.360	.360	.372	.433
70	C900,CT900Std.; CT800Opt.	T	8-4 1/8x3 5/8	217-3600	200-3600	413.3	7.50	373-2000	N	In	I	Sil(y)	1.88	1.50			.360	.360	.372	.433
71	C1000 Std.; C900, CT900 Opt.	T	8-4 1/8x3 5/8	228-3600	205-3600	413.3	7.50	400-2000	N	In	I	Sil(y)	1.88	1.50			.360	.360	.372	.433
72	D100; P200 Opt.	T	6-3 11/16x3 1/2	101-4000	88-3600	170.2	8.60	145-1600	N	In	I	21-4N	1.62	1.36			.375	.368	.372	.371
73	D100, 200, 300; P200, 300; W100, 200	T	6-3 11/16x4 1/2	140-3900	127-3900	224.7	8.20	215-1600	N	In	I	21-4N	1.62	1.36			.362	.368	.372	.371
74	Ford 134	Tr	4-3 1/8x3 3/4	48-2200	43-2200	134.0	7.50	121-1600 (BE)	D	In	I	Aus	1.65	1.51	1.46	1.26	.355	.337	.342	.341
75	172	Tr	4-3 1/2x3 3/4	63-2200	57-2200	172.0	7.50	158-1500 (BE)	D	In	I	Aus	1.65	1.51	1.46	1.26	.355	.337	.342	.341
76	EBR, EBS, EBT	T	6-3 5/8x3 3/4	135-4000	114-3600	223.0	8.10	200-2000 (BE)	N	In	I	Aus	1.78	1.51	1.52	1.26	.369	.380	.342	.340
77	ECS	T	8-3 5/16x3 1/2	187-3800	163-3600	302.0	7.50	280-2700	N	In	I	CNS(x	1.93	1.51	1.79	1.30	.344	.375	.371	.434
78	ECT	T	8-3 1/2x3 3/4	200-3800	173-3600	332.0	7.50	307-2700	N	In	I	CNS(x	1.93	1.51	1.79	1.30	.344	.375	.371	.434
79	EEH, EEJ	T	8-3 5/16x3 1/2	160-4000	135-3800	292.0	8.00	270-2300 (BE)	N	In	I	Aus	1.65	1.51	1.44	1.30	.358	.356	.342	.341
80	EEK	T	8-3 1/2x3 3/4	173-4000	153-3800	292.0	8.00	274-2400 (BE)	N	In	I	CNS(x	1.65	1.51	1.44	1.34	.358	.356	.342	.435
81	EDL-2V	T	8-4 1/16x3 1/4	206-3600	180-3400	401.0	7.50	341-1700 (BE)	N	In	I	CNS(x	2.02	1.64	1.84	1.44	.416	.416	.435	.434
82	EDM-2V	T	8-4 1/16x3 1/4	231-3400	204-3200	477.0	7.50	412-1600 (BE)	N	In	I	CNS(x	2.02	1.64	1.84	1.44	.416	.416	.435	.434

For abbreviations, see pages 170 and 171

For Directory of the Engine Manufacturers listed above, see Page 53

TRACTOR, MARINE, OR INDUSTRIAL USE—*continued*

VALVES				PISTONS				CONNECTING RODS				CRANKSHAFT								CARBU-RETOR			OVERALL DIMENSIONS (In.)				
Seats															MAIN BEARINGS												
Angle (Deg.)	Inserts Used?	Insert Material (S.A.E. No.)	Camshaft Drive—Type	Material	Weight with Pins, Rings, Bushings (Oz.)	Piston Pin—Diameter and Length (In.)	Number of Rings per Piston	Material	Center to Center Length (In.)	Weight with Bushing and Cap (Oz.)	Material	Counter Balance Used	Crank-Pin Diameter and Length (In.)	Number	Diameter and Length (In.) Front	Diameter and Length (In.) Rear	Oil Pressure to—	Make	Size	Engine Weight without Carburetor or Ignition (Lb.)	Width	Height	Length	Clutch Housing (S.A.E. Nos.)	Line Number
(h)	Op	SA	HG	Al	.....	.859x2.68	4	1030	7	.....	DFS	N	1.93x1.31	3	2.25x1.18	2.25x1.89	acdgt	Op	Op	395	26	26½	29⅞	4	1
(h)	Op	SA	HG	Al	.....	1.12x2.75	4	1035	7	.....	DFS	N	2.06x	3	2.37x1.53	2.37x1.68		Op	Op	475	16½	19½	26½	4,3	2
(h)	Op	SA	HG	Al	.....	.859x2.87	4	1030	7	.....	DFS	N	1.93x1.31	3	2.25x1.18	2.25x1.89	acdgt	Op	Op	370	26	26½	29⅞	4	3
(h)	Op	SA	HG	Al	.....	.859x2.87	4	1030	7	.....	DFS	N	1.93x1.31	3	2.25x1.18	2.25x1.89	acdgt	Op	Op	395	26	26½	29⅞	4,3	4
(h)	Op	SA	HG	Al	.....	1.25x3.31	4	1035	9½	.....	DFS	N	2.50x1.18	3	2.87x1.81	2.87x2.06	acdg	Op	Op	645	19¼	33½	30½		5
(h)	Op	SA	HG	Al	.....	1.25x3.18	5	1035	9½	.....	DFS	N	2.50x1.18	3	2.87x1.81	2.87x2.06	acdg	Op	Op	654	19¼	33½	30½		6
(h)	E	SA	HG	Al	.....	1.25x3.18	4	1035	9½	.....	DFS	N	2.50x1.18	3	2.87x1.81	2.87x2.06	acdg			654	19¼	33½	30½		7
(h)	Op	SA	HG	CI	.....	.859x2.50	4	1030	7	.....	DFS	N	1.93x1.31	4	2.25x1.18	2.25x1.81	acdgt	Op	Op	505	26	27¼	36½	4	8
(h)	Op	SA	HG	CI	.....	.859x2.50	4	1030	7	.....	DFS	Y	1.93x1.31	4	2.25x1.81	2.25x1.81	acdgt	Op	Op	515	26	27¼	36½	4,3	9
(h)	Op	SA	HG	Al	.....	.859x2.68	4	1030	7	.....	DFS	N	1.93x1.31	4	2.25x1.18	2.25x1.81	acdgt	Op	Op	505	26	27⅛	36½	4	10
(h)	Op	SA	HG	Al	.....	.859x2.68	4	1030	7	.....	DFS	Y	1.93x1.31	4	2.25x1.18	2.25x1.81	acdgt	Op	Op	515	26	27¼	36½	4,3	11
(h)	Op	SA	HG	CI	.....	.859x2.81	4	1030	7	.....	DFS	Y	2.06x1.31	4	2.37x1.28	2.37x1.73	acdgt	Op	Op	510	26	27¼	36½	4	12
(h)	Op	SA	HG	Al	.....	.859x2.81	4	1030	7	.....	DFS	Y	2.06x1.31	4	2.37x1.28	2.37x1.81	acdgt	Op	Op	515	26	27¼	36½	4,3	13
(h)	E	.....	HG	Al	.....	1.10x3.06	5	1035	8⅛	.....	DFS	Y	2.25x1.56	7	2.62x1.50	2.62x2.18	acdgt	Op	Op	720	25½	29½	42	3	14
(h)	E	SA	HG	Al	.....	1.10x3.06	5	1035	8⅛	.....	DFS	Y	2.25x1.56	7	2.62x1.50	2.62x2.18	acdgt	Op	Op	755	25¾	29½	42	4,3	15
(h)	E	SA	HG	Al	.....	1.10x3.18	5	1035	8⅛	.....	DFS	Y	2.25x1.56	7	2.62x1.50	2.62x2.18	acdgt	Op	Op	720	25¾	29½	42	3	16
(h)	E	SA	HG	Al	.....	1.10x3.18	5	1035	8⅛	.....	DFS	Y	2.25x1.56	7	2.62x1.50	2.62x2.18	acdgt	Op	Op	755	25¾	29½	42	4,3	17
(h)	E	SA	HG	Al	.....	1.10x3.43	5	1035	8⅛	.....	DFS	Y	2.25x1.56	7	2.62x1.50	2.62x2.18	acdgt	Op	Op	720	25¾	29½	42	3	18
(h)	E	SA	HG	Al	.....	1.10x3.43	5	1035	8⅛	.....	DFS	Y	2.25x1.56	7	2.62x1.50	2.62x2.18	acdgt	Op	Op	755	25¾	29½	42	4,3	19
(h)	E	St	HG	Al	.....	1.25x3.43	5	1035	8⅛	.....	DFS	Y	2.50x1.69	7	2.87x1.65	2.87x2.62	acdgt	Op	Op	670	26	29¼	32½	2	20
(h)	E	St	HG	Al	.....	1.25x3.43	5	1035	8⅛	.....	DFS	Y	2.50x1.69	7	2.87x1.65	2.87x2.71	acdgt	Op	Op	670	26	29¼	43½	3,2	21
(n)	E	St	HG	Al	.....	1.25x3.37	5	1035	8⅛	.....	DFS‡	Y	2.50x1.69	7	2.87x1.65	2.87x2.71	acdg	Op	Op	1070	24½	31⅝	45½		22
(n)	E	SA	HG	Al	.....	1.25x3.37	5	1035	8⅛	.....	DFS	Y	2.50x1.69	7	2.87x1.65	2.87x2.71	acdg	Op	Op	1070	24½	31⅝	45½		23
(n)	E	SA	HG	Al	.....	1.25x3.62	5	1035	8⅛	.....	DFS	Y	2.50x1.69	7	2.87x1.65	2.87x2.71	acdg	Op	Op	1075	24½	31⅝	45½		24
(h)	E	.....	HG	Al	.....	1.25x3.43	5	1035	8⅛	.....	DFS	Y	2.50x1.69	7	2.87x1.65	2.87x2.62	acdfgt	Op	Op	875	26	29¼	43½	2	25
(h)	E	St	HG	Al	.....	1.25x3.43	5	1035	8⅛	.....	DFS‡	Y	2.50x1.69	7	2.87x1.65	2.87x2.71	acdfgt	Op	Op	875	26	29¼	43½	3,2	26
(n)	E	St	HG	Al	.....	1.25x3.62	5	1035	8⅛	.....	DFS‡	Y	2.50x1.69	7	2.87x1.65	2.87x2.71	acdg	Op	Op	1075	24½	31⅝	45½		27
(h)	E	SA	HG	Al	.....	1.50x3.72	5	1035	10½	.....	DFS	Y	.....	7	2.75x1.75	2.75x2.81	acfg			.....	26½	37½	47⅞	2	28
(h)	E	St	HG	Al	.....	1.50x3.72	5	1035	10½	.....	DFS‡	Y	.....	7	2.75x1.75	2.75x2.81	acfg	Op	Op	.....	26½	37½	47⅞	2	29
(h)	E	.....	HG	Al	.....	1.50x3.72	5	1035	10½	.....	DFS‡	Y	3.00x1.94	7	3.25x1.75	3.25x2.78	acdfgt	Op	Op	1550	.....	.....	.....	1	30
(h)	E	St	HG	Al	.....	1.50x3.72	5	1035	10½	.....	DFS‡	Y	3.00x1.94	7	3.25x1.75	3.25x2.75	acefg	Op	Op	1525	.....	.....	.....	2	31
(h)	E	.....	HG	Al	.....	1.50x3.72	5	1035	10½	.....	DFS‡	Y	3.00x1.94	7	3.25x1.75	3.25x2.75	acdfgt	Op	Op	1550	.....	.....	.....	1	32
(h)	E	St	HG	Al	.....	1.50x3.72	5	1035	10½	.....	DFS‡	Y	3.00x1.94	7	3.25x1.75	3.25x2.75	acdfg	Op	Op	1525	.....	.....	.....	2	33
(h)	E	St	HG	Al	.....	1.50x3.72	5	1035	10½	.....	DFS‡	Y	3.00x1.94	7	3.25x1.75	3.25x2.75	acdfg	Op	Op	1550	.....	.....	.....	1	34
(h)	E	St	HG	Al	.....	1.50x3.72	5	1035	10½	.....	DFS‡	Y	3.00x1.94	7	3.25x1.75	3.25x2.75	acdfgt	Op	Op	1525	.....	.....	.....	2	35
(h)	E	St	HG	Al	.....	1.75x4.53	5	8640	10½	.....	DFS‡	Y	.....	7	3.75x1.12	3.75x3.12	acdg	Op	Op	.....	31½	47⅞	57⅞	0	36
(h)	E	St	HG	Al	.....	1.75x4.53	5	8640	10½	.....	DFS‡	Y	.....	7	3.75x1.87	3.75x3.12	acdg	Op	Op	1865	31½	47⅞	57⅞	1	37
(n)	E	St	HG	Al	.....	1.10x3.06	5	1035	8⅛	.....	DFS‡	Y	2.25x1.56	7	2.62x1.50	2.62x2.18	acdfg	Op	Op	.....	.....	.....	.....	3	38
(n)	E	St	HG	Al	.....	1.10x3.18	5	1035	8⅛	.....	DFS‡	Y	2.25x1.56	7	2.62x1.50	2.62x2.18	acdfg	Op	Op	.....	.....	.....	.....	3	39
(n)	E	St	HG	Al	.....	1.10x3.43	5	1035	8⅛	.....	DFS‡	Y	2.25x1.56	7	2.62x1.50	2.62x2.18	acdfg	Op	Op	.....	.....	.....	.....	3	40
(h)	E	St	HG	Al	.....	1.75x4.53	5	8640	10½	.....	DFS‡	Y	.....	7	3.75x1.87	3.75x3.12	acdg	Op	Op	.....	.....	.....	.....	.....	41
(h)	E	AS	HG	Al	.....	1.50x3.97	4	8637	8⅝	46.8	1046	.....	3.13x3.13	5	3.50x1.63	3.50x2.75	abcdfg		1¾	.....	.....	.....	.....	2	42
(h)	E	AS	HG	Al	.....	1.50x3.97	4	8637	8⅝	46.8	1046	.....	3.13x3.13	5	3.50x1.63	3.50x2.75	abcdfg		1¾	1786	32½	33⅞	44⅞	2	43
(h)	E	St	HG	Al	.....	1.75x4.53	5	8640	10½	.....	DFS‡	.....	.....	7	3.75x1.87	3.75x3.12	abcdfg	Op	.....	.....	.....	.....	.....	.....	44
(h)	E	SA	HG	Al	.....	1.25x3.18	4	1035	9½	.....	DFS	.....	2.50x1.18	3	2.87x1.81	2.87x2.06	acdfg	Op	.....	660	19¾	33½	30½	3	45
(h)	E	SA	HG	Al	.....	1.10x3.43	5	1035	8⅛	.....	1046	.....	2.25x1.56	7	2.62x1.50	2.62x2.18	acdg	Op	.....	850	25¾	29½	42	3	46
(h)	E	SA	HG	Al	.....	1.10x3.43	5	1035	8⅛	.....	1046	.....	2.25x1.56	7	2.62x1.50	2.62x2.18	acdg	Op	.....	840	25¾	29½	42	3	47
(h)	E	Ste	HG	Al	.....	1.11x3.43	5	1035	8⅛	.....	1046	.....	2.25x1.56	7	2.81x1.36	2.81x1.94	acdfg	Op	.....	970	24½	34	40½	3	48
(h)	E	Ste	HG	Al	.....	1.11x3.43	5	1035	8⅛	.....	1046	.....	2.25x1.56	7	2.81x1.36	2.81x1.94	acf	Op	.....	960	24½	34	40½	3	49
(h)	E	SA	Ch	Ala	.....	.859x	4	1030	7	.....	1046	.....	2.06x1.31	4	2.38x1.28	2.38x1.64	acdf	Op	Op	.....	.....	.....	.....	.....	50
(k)	E	SA	HG	Al	.....	.859x2.86	4	1041	8⅛	.....	DFS	.....	1.94x1.25	3	2.25x1.44	2.25x1.55	acdfg	Op	.....	.....	.....	.....	.....	.....	51
(h)	E	SA	HG	Al	.....	1.11x3.07	4	1041	7	.....	DFS	.....	2.25x1.31	3	2.38x1.59	2.38x1.78	acdfg	Op	.....	525	.....	.....	.....	4	52
(h)	E	SA	HG	Al	.....	1.11x3.07	4	1041	7	.....	DFS	.....	2.25x1.31	3	2.38x1.59	2.38x1.78	acdfg	Op	.....	.....	.....	.....	.....	4	53
(h)	E	SA	HG	Al	.....	1.11x3.06	4	1041	8⅛	.....	DFS	.....	2.25x1.56	3	2.63x1.63	2.63x1.94	acdfg	Op	.....	.....	.....	.....	.....	4	54
(h)	E	SA	HG	Al	.....	1.11x3.06	4	1041	8⅛	.....	DFS	.....	2.25x1.56	3	2.63x1.63	2.63x1.94	acdfg	Op	.....	.....	.....	.....	.....	4	55
(h)	E	SA	HG	Al	.....	.859x2.87	4	1041	7	.....	DFS	.....	2.06x1.31	4	2.38x1.28	2.38x1.73	acdfg	Op	.....	.....	.....	.....	.....	4	56
(k)	E	SA	HG	Al	.....	1.50x3.71	4	1035	10½	.....	DFS	.....	2.74x1.81	3	3.25x2.13	3.25x2.34	acdfg	Op	.....	.....	.....	.....	.....	3	57
45	N	.....	Ch	Als	.....	.927x3.00	4	DFS	5⅛	.....	DFS	.....	.....	5	2.30x	2.30x	acdf	R-P	.....	740	26½	23⅞	41¼	.....	58
45	N	.....	Ch	Als	.....	.927x3.00	4	DFS	5⅛	.....	DFS	.....	.....	5	2.30x	2.30x	acdf	R-P	.....	740	26½	25⅝	41¼	.....	59
44	N	.....	Ch	Al	.....	1.00x3.09	3	DFS	6⅛	.....	DFS	.....	2.25x	5	2.63x.907	2.63x1.62	acdf	Zen	.....	800*	32⅞	23½	46⅞	.....	60
44	N	.....	Ch	Al	.....	1.00x3.09	3	DFS	6⅛	.....	DFS	.....	2.25x	5	2.63x.907	2.63x1.62	acdf	Car	.....	800	32⅞	27½	44⅞	.....	61
44	N	.....	Ch	Al	.....	1.00x3.09	3	DFS	6¼	.....	DFS	.....	2.25x	5	2.63x.907	2.63x1.62	acdf	Car	.....	800	32⅞	26½	44⅞	.....	62
45	N	.....	Ch	Als	.....	.927x3.00	4	DFS	5⅛	.....	.....	.....	.....	5	2.30x	2.30x	acdf	R-P	.....	740	27	23	41¼	.....	63
45	E	SA	Ch	Al	19.1°°	.859x2.87	3	MS	7⅛	.....	CS	Y	2.12x1.06	4	2.50x1.55	2.50x1.59	.....	BB	1⅛	.....	.....	.....	.....	.....	64
45	N	.....	Ch	Al	20.8°°	.984x3.00	3	MS	6½	.....	CS	Y	2.25x.842	5	2.50x.852	2.50x1.54	.....	Str	1⅛	.....	.....	.....	.....	.....	65
45	N	.....	Ch	Al	20.8°°	.984x3.00	3	MS	6¼	.....	CS	Y	2.25x.842	5	2.50x.852	2.50x1.54	.....	Str	1⅛	.....	.....	.....	.....	.....	66
45	E	Eat	G	Al	27.4°°	1.09x3.45	3	MS	8⅛	.....	CS(q)	Y	2.37x.927	5	2.62x.924	2.62x.943	.....	Str	1⅛	.....	.....	.....	.....	.....	67
45	E	Eat	G	Al	27.4°°	1.09x3.45	3	MS	8⅛	.....	CS(q)	Y	2.37x.927	5	2.62x.924	2.62x.943	.....	BB	1½	.....	.....	.....	.....	.....	68
45	E	Eat	G	Al	27.4°°	1.09x3.45	3	MS	8⅛	.....	CS(q)	Y	2.37x.927	5	2.62x.924	2.62x.943	.....	BB	1½	.....	.....	.....	.....	.....	69
45	E	Eat	G	Al	29.6°°	1.09x3.57	3	MS	8⅛	.....	CS(q)	Y	2.37x.927	5	2.75x.924	2.75x.943	.....	BB	1½	.....	.....	.....	.....	.....	70
45	E	Eat	G	Al	29.6°°	1.09x3.57	3	MS	8⅛	.....	CS(q)	Y	2.37x.927	5	2.75x.924	2.75x.943	.....	Car‡‡	1⅛	.....	.....	.....	.....	.....	71
45	N	.....	Ch	Al	16.4°°	.900x2.97	3	MS	5⅛	.....	CS	Y	2.19x1.05	4	2.75x1.03	2.75x1.25	.....	BB	1⅛	.....	.....	.....	.....	.....	72
45	N	.....	Ch	Al	16.4°°	.900x2.97	3	MS	6⅛	.....	CS	Y	2.19x1.05	4	2.75x1.03	2.75x1.25	.....	BB	1⅛	.....	.....	.....	.....	.....	73
45	E	CA	HG	Alst	24.0	.912x2.84	3	1041	6¼	32.0	CAI	.....	2.30x1.25	3	2.50x1.50	2.50x1.65	acdfi	MaS	1	489*	19⅞	27½	30½	N	74
45	E	CA	HG	Alst	31.4	.912x3.17	3	1041	6¼	32.0	CAI	.....	2.30x1.25	3	2.50x1.50	2.50x1.65	acdfi	MaS	1¼	489*	19⅞	27½	30½	N	75
45	N	.....	Ch	Alst	26.7	.912x3.02	3	1041	6¼	29.6	AI	.....	2.30x1.25	4	2.50x1.10	2.50x1.35	acdf	Hol	1⅛	418	23½	32½	33⅝	.....	76
45	Bo	CA	HG	Alst	34.0	.912x3.02	4	4137	7⅛	28.4	1046	.....	2.25x1.88	5	2.62x.975	2.62x.975	acdf	Hol	1⅛	641	31⅞	36	32½	.....	77
45	Bo	CA	HG	Alst	34.4	.912x3.17	4	4137	7⅛	28.4	1046	.....	2.25x1.88	5	2.62x.975	2.62x.975	acdf	Hol	1⅛	648	31⅞	36	32½	.....	78
45	N	.....	Ch	Alst	25.0	.912x3.02	3	1041	6¼	24.3	AI	.....	2.19x1.76	5	2.50x.907	2.50x.907	acdf	Hol	1⅛	553	30½	32½	31⅛	.....	79
45	E	TCA	Ch	Alst	25.0	.912x3.02	3	1041	6¼	24.3	1046	.....	2.19x1.76	5	2.50x.907	2.50x.907	acdf	Hol‡‡	1⅛	553	30½	32½	31⅛	.....	80
45	Bo	CA	HG	Alst	51.7	1.22x3.34	4	4137	7¾	42.1	5046	.....	2.75x2.03	5	3.13x1.10	3.13x1.10	acdf	Hol	1⅛	963	34½	44⅛	35½	.....	81
45	Bo	CA	HG	Alst	57.1	1.22x3.85	4	4137	7¾	42.1	5046	.....	2.75x2.03	5	3.13x1.10	3.13x1.10	acdf	Hol	1⅛	927	34½	44⅛	35½	.....	82

For abbreviations, see pages 170 and 171

For Directory of the Engine Manufacturers listed above, see Page 53

1961 GASOLINE ENGINES FOR TRUCK, BUS,

Line Number	ENGINE MAKE AND MODEL	Designed for	Number of Cylinders, Bore and Stroke (In.)	MAXIMUM BRAKE Hp. at Specified R.P.M.		Piston Displacement (Cu. In.)	Compression Ratio	Maximum Torque at R.P.M. (Lb. Ft.) with or without Accessories	Cylinder Liners—Type	Crankcase—Upper Half Integral with Cylinders	VALVES									
				With Bare Engine	With Standard Accessories						Arrangement	Exhaust Head Material (S.A.E. No.)	Max. Head Diameter (In.)		Min. Port Diameter (In.)		Lift (In.)		Stem Diameter (In.)	
													Intake	Exhaust	Intake	Exhaust	Intake	Exhaust	Intake	Exhaust
1	Ford—Cont'd. EDN-4V	T	8-4 1/2x4 11/16	268-3200	235-3000	534.0	7.50	481-1700 (BE)	N	In	I	CNS(x	2.02	1.84	1.84	1.44	.416	.416	.435	.434
2	EDL-4V	T	8-4 1/2x3 5/8	226-3600	198-3400	401.0	7.50	343-2300 (BE)	N	In	I	CNS(x	2.02	1.84	1.84	1.44	.416	.416	.435	.434
3	EDM-4V	T	8-4 1/2x3 5/8	253-3400	222-3200	477.0	7.50	415-2300 (BE)	N	In	I	CNS(x	2.02	1.84	1.84	1.44	.416	.416	.435	.434
4	EEN	T	6-3 1/2x2 1/2	85-4200	79-4000	144.3	8.70	134-2000 (BE)	N	In	I	Aus	1.47	1.27	1.28	1.08	.344	.344	.310	.310
5	EER	T	6-3 1/2x4 1/16	152-4000	132-3600	262.0	8.00	238-1600 (BE)	N	In	I	CNS	1.70	1.51	1.52	1.34	.369	.369	.371	.370
6	D	Ind	4-3.9x3.6	61-2800	.....	172.0	7.50	148-1300 (BE)	D	In	I	Aus	1.65	1.52	1.46	1.26	.355	.337	.343	.342
7	E	Ind	4-3 1/8x3 3/8	46.5-2800	.....	134.0	7.50	110-1400 (BE)	D	In	I	Aus	1.65	1.52	1.46	1.26	.355	.337	.343	.342
8	F	Ind	6-3 5/8x3 3/8	107-2800	.....	223.0	8.30	203-2000 (BE)	N	In	I	Aus*	1.70	1.52	1.46	1.26	.369	.369	.342	.341
9	J	Ind	8-3 5/8x3 3/8	132-2800	.....	272.0	8.30	250-2400 (BE)	N	In	I	Aus*	1.93	1.52	.....	.....	.400	.420	.342	.341
10	L	Ind	8-3 3/4x3 7/16	168-2800	.....	332.0	7.60	320-2400 (BE)	N	In	I	CNSx*	2.01	1.52	.....	.....	.348	.374	.342	.435
11	Q	Ind	8-4 1/8x3 5/8	185-2800	148-2600	401.0	7.50	351-2000 (BE)	N	In	I	TCAx*	2.02	1.64	1.84	1.44	.414	.414	.435	.435
12	M	Ind	8-4 1/8x3 3/4	226-2800	181-2800	477.0	7.50	431-2000 (BE)	N	In	I	TCAx*	2.02	1.64	1.84	1.44	.414	.414	.435	.435
13	N	Ind	8-4 1/8x4 1/16	252-2800	202-2600	534.0	7.50	492-2000 (BE)	N	In	I	TCAx*	2.02	1.64	1.84	1.44	.414	.414	.435	.435
14	K	Ind	8-3 5/8x3 7/16	142-2800	115-2800	292.0	7.90	272-2400 (BE)	N	In	I	Aus	1.65	1.52	.....	.....	.400	.420	.342	.340
15	GMC 270	B,T	6-3 11/16x4	133-3600	120-3600	289.5	7.75	238-1650 (BE)	N	In	I	Sil	1.64	1.48	1.31	1.15	.395	.387	.341	.340
16	305A	T	6-4 1/4x3 11/16	150-3600	125-3600	304.6	7.75	260-1600 (BE)	N	In	I	Sil	2.00	1.57	1.80	1.25	.406	.397	.344	.344
17	305B	T	6-4 1/4x3 11/16	150-3600	127-3600	304.6	7.75	266-1200 (BE)	N	In	I	Sil^	2.00	1.57	1.80	1.25	.406	.397	.344	.344
18	306C	T	6-4 1/4x3 11/16	165-3800	142-3800	304.6	7.75	270-1400 (BE)	N	In	I	Sil^	2.00	1.57	1.80	1.25	.406	.397	.344	.344
19	351	T	6-4 1/4x3 11/16	180-3400	155-3400	351.1	7.50	312-1800 (BE)	N	In	I	Silx^	2.16	1.83	1.89	1.66	.406	.397	.375	.438
20	401	T	6-4 1/4x3 15/16	210-3400	182-3400	400.9	7.50	377-1400 (BE)	N	In	I	Silx^	2.16	1.83	1.89	1.66	.406	.397	.375	.438
21	702	T	12-4 1/4x3 11/16	275-2400	250-2400	702.1	7.50	630-1600 (BE)	N	In	I	Silx^	2.16	1.83	1.89	1.66	.378	.378	.375	.438
22	305D	T	6-4 1/4x3 11/16	165-3800	142-3800	304.6	7.75	270-1500 (BE)	N	In	I	Silx^	2.00	1.57	1.80	1.25	.406	.397	.344	.344
23	Gray Marine Seascout 4-91	M	4-2 7/8x3 1/2	.....	25-2000	91.0	7.45	.....	N	In	L	Sil	1.20	1.02	1.06	.875	.284	.284	.314	.313
24	Four-112	M	4-3 1/8x3 1/2	.....	31-2000	112.0	6.00	.....	N	In	L	Sil	1.20	1.02	1.06	.900	.284	.284	.313	.313
25	Four-162	M	4-3 7/16x4 5/8	.....	63-3000	162.9	6.50	.....	N	In	L	Sil	1.51	1.33	1.37	1.18	.331	.331	.340	.361
26	Four-85	M	4-3 1/16x4 5/8	.....	85-4000	162.9	8.00	.....	N	In	L	Sil	1.64	1.45	1.37	1.18	.331	.331	.340	.313
27	Model 620	M	4-3 5/8x3 5/8	.....	60-3200	140.0	7.05	96-2400 (EA)	N	In	L	Sil	1.51	1.33	1.37	1.18	.331	.331	.341	.339
28	Model 70	M	4-3 7/16x4 5/8	.....	70-3400	162.9	8.00	125-2200 (EA)	N	In	L	Sil	1.64	1.45	1.37	1.18	.331	.331	.340	.313
29	Model 109	M	6-3 5/8x4 5/8	.....	109-3400	226.8	8.00	.....	N	In	L	Sil	1.51	1.33	1.37	1.18	.311	.311	.340	.339
30	Model 116	M	6-3 5/8x4 5/8	.....	116-3600	226.8	8.00	1595-2800 (EA)	N	In	L	Sil	1.51	1.33	1.37	1.18	.348	.332	.340	.339
31	Model 118	M	6-3 5/8x4 5/8	.....	118-3600	226.8	8.00	.....	N	In	L	Sil	1.51	1.33	1.37	1.18	.311	.311	.340	.339
32	Model 180	M	6-4x4 1/2	.....	150-3400	330.0	7.75	.....	N	In	L	Sil(x)	1.89	1.58	1.62	1.37	.354	.354	.403	.401
33	Model 165	M	6-4x4 1/2	.....	165-3400	363.0	8.00	286-1400 (EA)	N	In	L	Sil	1.89	1.59	1.62	1.37	.354	.354	.404	.431
34	Model 175	M	6-4x4 1/2	.....	175-3400	363.0	8.00	316-1400 (EA)	N	In	L	Sil	1.89	1.59	1.62	1.37	.354	.354	.404	.431
35	Model 185	M	6-4 1/8x4 7/16	.....	185-3400	427.0	7.20	352-1200 (EA)	N	In	L	Sil	2.16	1.77	2.02	1.63	.359	.359	.434	.431
36	Model 200	M	6-4 1/8x4 7/16	.....	200-3400	427.0	7.20	368-1200 (EA)	N	In	L	Sil	2.16	1.77	2.02	1.63	.359	.359	.434	.431
37	V-8 170	M	8-3 1/2x3 1/16	.....	170-4400	250.0	8.40	230-2600 (EA)	N	In	I	21-4N	1.79	1.41	1.59	1.25	.375	.375	.372	.372
38	V-8 225	M	8-4x3 1/16	.....	225-4400	327.0	9.50	343-2700 (EA)	N	In	I	21-4N	1.79	1.41	1.59	1.25	.375	.375	.372	.372
39	V-8 135	M	8-3 1/16x3 1/16	.....	135-4000	250.0	8.40	230-2600 (EA)	N	In	I	21-4N	1.79	1.41	1.59	1.25	.375	.375	.372	.372
40	V-8 188	M	8-4x3 1/16	.....	188-3800	327.0	9.50	.....	N	In	I	21-4N	1.79	1.41	1.59	1.25	.375	.375	.372	.372
41	4-90	M	4-3 7/16x4 5/8	.....	90-3600	162.9	8.00	143-2000 (EA)	N	In	L	Sil	1.64	1.45	1.37	1.18	.331	.331	.340	.313
42	6-111	M	6-3 7/16x4 5/8	.....	111-3600	226.8	8.00	198-2000 (EA)	N	In	L	Sil	1.51	1.33	1.37	1.18	.311	.311	.340	.339
43	V8-138	M	8-3 1/2x3 1/16	.....	138-4200	250.0	8.40	201-2900 (EA)	N	....	I	21-4N	1.79	1.41	1.59	1.25	.375	.375	.372	.372
44	V8-178	M	8-3 1/2x4 1/16	.....	178-4400	250.0	8.40	223-3400 (EA)	N	....	I	21-4N	1.79	1.41	1.59	1.25	.375	.375	.372	.372
45	V8-238	M	8-4x3 1/16	.....	238-4400	327.0	9.50	360-2800 (EA)	N	In	I	21-4N	1.79	1.41	1.59	1.25	.375	.375	.372	.372
46	Hercules C2-90D	GP	2-4x3 1/2	35-3000	30-3000	88.0	....	70-1900	N	....	....	....	1.65	1.29	1.38	1.13	.406	.406	.342	.342
47	CV4-180	GP	4-4x3 1/2	71-3000	60-3000	176.0	....	137-2200	N	....	....	....	1.65	1.29	1.38	1.13	.406	.406	.342	.342
48	ZXB	T,Tr,M,Ind	4-2 5/8x3	24-3600	21-3600	65.0	6.30	40-1800 (BE)	N	In	L	Aus	1.30	1.05	1.12	.875	.200	.200	.248	.248
49	IXLB	T,Tr,M,Ind	4-3 1/4x4 1/4	49-3200	42-3200	141.0	6.50	97-1800 (BE)	N	In	L	Aus	1.48	1.35	1.25	1.12	.250	.250	.310	.310
50	GO-149-H	Tr,M,Ind	3-3 1/4x4 1/2	47-2600	40-2600	149.0	6.50	114-1400 (BE)	N	In	I	2112	1.69	1.50	1.44	1.25	.369	.369	.375	.375
51	GO-169-H	Tr,M,Ind	3-4x4 1/4	52-2600	44-2600	169.0	6.50	130-1400 (BE)	N	In	I	2112	1.69	1.50	1.44	1.25	.369	.369	.375	.375
52	GO-199-AH	Tr,M,Ind	4-3 1/4x4 1/2	85-3200	73-3200	188.0	6.50	178-1500 (BE)	D	....	I	2112	1.69	1.50	1.44	1.25	.369	.369	.375	.375
53	GO-226-AH	Tr,M,Ind	4-4x4 1/2	93-3200	79-3200	226.0	6.50	200-1500 (BE)	N	In	I	2112	1.69	1.50	1.44	1.25	.369	.369	.375	.375
54	QXLD	T,B,Tr,M,Ind	6-3 1/4x4 1/4	92-3200	77-3200	236.7	6.50	190-1400 (BE)	N	In	L	2112N	1.64	1.64	1.50	1.25	.311	.311	.310	.310
55	JXC	T,B,Tr,M,Ind	6-3 1/4x4 1/4	103-3200	87.5-3200	282.0	6.50	207-1400 (BE)	N	In	L	2112N	1.68	1.56	1.50	1.37	.356	.356	.373	.373
56	G-298-H	Tr,M,Ind	6-3 3/4x4 1/2	128-3600	109-3600	298.0	6.50	271-1400 (BE)	D	In	I	2112	1.69	1.50	1.44	1.25	.369	.369	.375	.375
57	JXD	T,B,Tr,M,Ind	6-4x4 1/4	113-3000	98-3000	320.0	6.50	240-1200 (BE)	N	In	L	2112N	1.68	1.56	1.50	1.37	.356	.356	.373	.373
58	G-339-H	Tr,M,Ind	6-4x4 1/2	143-3600	121-3600	339.0	6.50	306-1400 (BE)	....	....	I	2112	1.69	1.50	1.44	1.25	.369	.369	.375	.375
59	IXB	T,Tr,M,Ind	4-3 1/4x4	47-3400	40-3400	133.0	6.50	92-1800	N	In	L	Aus	1.48	1.35	1.25	1.12	.250	.250	.310	.310
60	QXD	T,B,Tr,M,Ind	6-3 1/4x4 1/4	79-3200	67-3200	230.0	6.50	167-1500	N	In	L	2112	1.64	1.64	1.50	1.25	.311	.311	.310	.310
61	JXLD	T,B,Tr,M,Ind	6-4x4 1/2	131-3200	111-3200	339.0	6.50	272-1400	N	In	L	2112	1.83	1.67	1.72	1.50	.356	.356	.373	.373
62	Hercules-Hall-Scott 590	B,T,Ind	6-5x5	242-2800	205-2800	590.0	6.60	492-1600 (BE)	N	Se	I	2112	2.37	2.37	2.14	2.14	.500	.500	.496	.496
63	6182	T,Ind	6-5 1/4x7	368-2300	313-2300	1091.0	8.10	1080-1200 (BE)	N	Se	I	2112	2.63	2.38	2.38	2.02	.547	.547	.496	.527
64	2260-O	Ind	12-5 1/4x7	575-2100	490-2100	2181.0	6.50	1750-1200 (BE)	N	Se	I	2112	2.87	2.75	2.62	2.50	.482	.482	.497	.528
65	6156	T,Ind	6-5 1/4x6	300-2400	255-2400	935.0	8.10	800-1200	N	Se	I	2112	2.63	2.38	2.38	2.02	.547	.547	.496	.528
66	400-O	Ind	6-5 1/4x7	295-2000	250-2000	1091.0	5.70	550-1200	N	Se	I	2112	2.63	2.38	2.38	2.02	.547	.547	.497	.528
67	Inter. opter 85	M	6-3 1/16x2 1/2	.....	85-4200	144.0	8.70	116-2350 (EA)	N	In	I	Aus	1.47	1.27	.....	.....	.....	.....	.310	.309
68	135	M	8-3 5/16x3 1/16	.....	135-4000	256.0	7.60	198-2100 (EA)	N	In	I	Aus	1.93	1.51	1.66	1.30	.400	.420	.342	.341
69	170	M	8-3 5/16x3 5/16	.....	170-4000	272.0	8.30	220-3000 (EA)	N	In	I	Aus	1.93	1.51	1.66	1.30	.400	.420	.342	.341
70	185	M	8-3 1/2x3 5/16	.....	185-4000	292.0	8.80	272-2500 (EA)	N	In	I	Aus	1.93	1.51	1.66	1.30	.400	.420	.342	.341
71	215	M	8-3 11/16x3 5/16	.....	215-4000	312.0	8.90	290-2800 (EA)	N	In	I	Aus	1.93	1.51	1.66	1.30	.400	.420	.342	.341
72	240	M	8-4 1/16x3 1/2	.....	240-4200	361.0	8.60	345-2800 (EA)	N	In	I	Aus	2.03	1.56	1.80	1.84	.406	.406	.372	.372
73	275	M	8-4 1/16x3 5/8	.....	275-4000	430.0	8.00	396-2900 (EA)	N	In	I	Aus	2.09	1.78	.....	.....	.406	.406	.372	.370
74	100	M	6-3 1/2x2 1/2	.....	100-4200	170.0	8.70	156-2400 (EA)	N	In	I	Aus	.....	.....	.....	.....	.310	.309	.....	.....
75	260	M	8-4 1/16x3 5/8	.....	260-4200	390.0	8.00	370-2800 (EA)	N	....	I	Aus	2.03	1.56	1.80	1.84	.406	.406	.372	.372
76	International UC-60	Tr,Ind	4-2 5/8x2 3/4	17-2500	16.5-2500	59.5	7.00	39.5-1600 (BE)	N	In	L	Sil	1.10	.906	.980	.792	.222	.222	.310	.310
77	UC-135	Tr,Ind	4-3 1/4x4 1/4	42-2000	40-2000	135.0	7.30	121-1200 (BE)	W	In	I	Sil	1.50	1.31	1.34	1.16	.321	.321	.341	.341
78	UB-220	T,Ind	6-3 7/8x3 1/2	110-3400	80-2800	220.0	7.50	194-1800 (BE)	N	In	I	Aus	1.66	1.52	1.50	1.31	.406	.406	.372	.372
79	UB-264	T,Ind	6-3 1/2x4 1/16	148-3400	112-2800	264.0	7.50	248-2400 (BE)	N	In	I	Aus	1.78	1.52	1.63	1.31	.406	.406	.372	.372
80	UC-221	Tr,Ind	6-3 7/8x3 1/2	75-2400	71-2400	221.0	7.20	180-1600 (BE)	D	In	I	21-4N	1.66	1.52	1.37	1.31	.406	.406	.372	.372
81	UC-263	Tr,Ind	6-3 7/8x4 1/2	95-2400	91-2400	263.0	7.20	219- 900 (BE)	D	In	I	21-4N	1.66	1.52	1.37	1.31	.406	.406	.372	.372
82	U-306	T,Ind	6-3 1/2x4 1/16	154-3600	87.5-2400	308.0	6.57	230-1200 (BE)	N	In	I	21-4N	1.81	1.62	1.69	1.44	.406	.406	.372	.371
83	U-372	T,Ind	6-4 5/8x4 1/2	165-3200	104-2200	372.1	6.50	286-1200 (BE)	D	In	I	21-4N	2.25	1.78	2.00	1.60	.450	.450	.434	.434

For abbreviations, see pages 170 and 171

For Directory of the Engine Manufacturers listed above, see Page 53

TRACTOR, MARINE, OR INDUSTRIAL USE—*continued*

VALVES				PISTONS				CONNECTING RODS			CRANKSHAFT							CARBURETOR			OVERALL DIMENSIONS (In.)				
Seats														MAIN BEARINGS											
Angle (Deg.)	Inserts Used?	Insert Material (S.A.E. No.)	Camshaft Drive—Type	Material	Weight with Pins, Rings, Bushings (Oz.)	Piston Pin—Diameter and Length (In.)	Number of Rings per Piston	Material	Center to Center Length (In.)	Weight with Bushing and Cap (Oz.)	Material	Counter Balance Used	Crank-Pin Diameter and Length (In.)	Number	Diameter and Length (In.) Front	Diameter and Length (In.) Rear	Oil Pressure to—	Make	Size	Engines Weight without Carburetor or Ignition (Lb.)	Width	Height	Length	Clutch Housing (S.A.E. Nos.)	Line Number
45	Be	CA	HG	Alst	56.3	1.22x3.85	4	4137	7¾	42.1	5046	....	2.75x2.03	5	3.13x1.10	3.13x1.10	acdf	Hol‡‡	1 7/16	941	34 1/2	44 1/2	35 1/2	.....	1
45	Be	CA	HG	Alst	51.7	1.22x3.34	4	4137	7¾	42.1	5046	....	2.75x2.03	5	3.13x1.10	3.13x1.10	acdf	Hol‡‡	1 7/16	963	34 1/2	44 1/2	35 1/2	.....	2
45	Be	CA	HG	Alst	57.1	1.22x3.85	4	4137	7¾	42.1	5046	....	2.75x2.03	5	3.13x1.10	3.13x1.10	acdf	Hol‡‡	1 7/16	927	34 1/2	44 1/2	35 1/2	.....	3
45½	N	.....	Ch	Alst	24.3	.912x3.02	3	1041	6¼	20.2	Al	....	2.12x1.00	4	2.25x1.02	2.25x1.02	acd	Hol	1 7/16	293	19 1/2	27 1/2	33 1/2	.....	4
45½	E	CA	HG	Alst	31.8	.912x3.02	3	1041	6¼	33.7	1046	....	2.30x1.07	4	2.50x1.10	2.50x1.10	acdf	Hol	1 7/16	478	27 1/2	34 7/16	34 1/2	.....	5
45	E	TCA	G	Alt	25	.912x2.96	3	MS	6½	24	Al	....	2.19x1.76	3	2.50x1.17	2.50x1.22	acdfg	MaS	1 5/16	489*	19 7/16	27 1/16	29 1/16	3,4,5	6
45	E	TCA	G	Alt	26	.912x3.03	3	MS	6½	30.5	Al	....	2.30x1.25	3	2.50x1.30	2.50x1.64	acdfg	MaS	1 5/16	489*	19 7/16	27 1/16	29 1/16	3,4,5	7
45	E	TCA	Ch	Alst	19.2**	.912x3.02	3	SF	6½	29.6	Al	....	2.30x1.25	4	2.50x.923	2.50x.923	acdfg	Hol	1 1/16	507	21 5/16	30 1/16	34 5/16	3,4	8
45	E	TCA	Ch	Alt	18.7**	.912x3.02	3	SF	6½	24.1	Al	....	2.19x1.76	5	2.50x.728	2.50x.728	acdf	Hol	1 1/16	610	28 1/16	29 1/16	31 1/16	3,4	9
45	Be	TCA	HG	Alt	22.9**	.912x3.17	4	SF	6¼	28.4	Al	....	2.25x1.88	5	2.62x.723	2.62x.723	acdf	Hol	1 1/16	753	31 1/16	34 1/16	31 1/16	2,3	10
45	Bo	TCA	HG	Als	51.6	1.22x3.34	4	1041	7¾	41.0	5046	....	2.75x2.03	5	3.13x1.10	3.13x1.10	abcdefg	Hol	1 1/16	1029*	30 1/16	37 1/16	35 1/16	1,2	11
45	Bo	TCA	HG	Als	56.5	1.22x3.85	4	1041	7¾	41.0	5046	....	2.75x2.03	5	3.13x1.10	3.13x1.10	abcdefg	Hol	1 1/16	1032*	30 1/16	37 1/16	35 1/16	1,2	12
45	Bo	TCA	HG	Als	56.5	1.22x3.85	4	1041	7¾	41.0	5046	....	2.75x2.03	5	3.13x1.10	3.13x1.10	abcdefg	Hol	1 1/16	1032*	30 1/16	37 1/16	35 1/16	1,2	13
45	E	TCA	Ch	Als	.....	.912x3.01	3	SF	6¼	.....	Al	....	2.19x1.76	5	2.50x.728	2.50x.728	abcdfg	Hol	1 1/16	610	28 1/16	29 1/16	31 1/16	3,4	14
30	N	.....	HG	Alt	41.0	1.05x3.25	4	1141	7	34	1046	Y	2.31x1.44	4	2.69x1.25	2.78x1.53	abcdfg	Zen	1 5/16	.....	26 1/16	38	41	.....	15
(h)	N	.....	Ch	Alst	54.6	1.24x3.58	4	1141	7 1/16	51.1	85M	....	2.81x1.30	4	3.13x1.16	3.13x1.16	acdfg	Hol	1 1/16	.....	31 1/16	35 1/16	41	.....	16
(h)	N	.....	Ch	Alst	54.6	1.24x3.58	4	1141	7 1/16	51.1	85M	....	2.81x1.30	4	3.13x1.16	3.13x1.16	acdfg	Zen	1 1/16	.....	29 1/16	41 1/16	41	.....	17
(h)	N	.....	Ch	Alst	54.6	1.24x3.58	4	1141	7 1/16	51.1	85M	....	2.81x1.30	4	3.13x1.16	3.13x1.16	acdfg	Str♯	1 1/16	.....	29 1/16	39 1/16	41	.....	18
(h)	E	AS	Ch	Alst	70.6	1.24x3.58	4	1141	7 1/16	51.1	1046	....	2.81x1.30	4	3.13x1.16	3.13x1.16	acdfg	Str♯	1 1/16	.....	30	39 1/16	39 1/16	2	19
(h)	E	AS	HG	Alst	70.6	1.24x3.58	4	1141	7 1/16	51.1	1046	....	2.81x1.30	4	3.13x1.16	3.13x1.16	acdfg	Str♯	1 1/16	.....	30	39 1/16	39 1/16	2	20
(h)	E	AS	HG	Alst	70.6	1.24x3.58	4	1141	7 1/16	51.1	1046	....	2.81x2.58	7	3.13x1.16	3.13x1.16	acdg	Str(2)♯	1 1/16	.....	37 1/16	37 1/16	58 1/16	2	21
(h)	N	.....	.....	Als	54.6	1.24x3.58	4	1141	7 1/16	51.1	85M	....	2.81x1.30	4	3.13x1.16	3.13x1.16	acdfg	Str♯	1 1/16	.....	29 7/16	39 7/16	41	.....	22
(h)	N	.....	HG	Al	.....	.703x2.43	3	1030	5¾	.....	1045	N	1.5x1.18	3	1.75x1.78	1.75x1.37	acdr	Zen	1	385	17 3/16	19 7/16	31	.....	23
(h)	N	.....	HG	Al	.....	.708x2.75	3	1030	5¾	.....	1045	N	1.50x1.00	3	1.75x1.43	1.75x1.21	acdr	Zen	1	400	17 3/16	19 1/16	31	.....	24
(h)	N	.....	HG	Al	.....	.859x2.69	4	CS	7	.....	1045	N	1.93x1.31	3	2.25x1.89	2.25x1.18	acdr	Car	1 1/16	565	19 1/16	22 1/16	30	.....	25
(h)	N	.....	HG	Al	.....	.859x2.68	4	CS	7	.....	1045	N	1.93x1.31	3	2.25x1.69	2.25x1.18	acdr	Zen	1 5/16	540	23 1/16	22 1/16	35	.....	26
(k)	N	.....	HG	Al	28	.859x2.68	4	1035	7	28	1045	....	1.94x1.31	3	2.25x1.89	2.25x1.31	acd	Car	1 1/16	525	19 1/16	21 1/16	34	.....	27
(h)	N	.....	HG	Al	.....	.859x2.68	4	1035	7	28.0	1045	....	1.93x1.31	3	2.25x1.89	2.25x1.18	acd	Car	1 1/16	545	19 1/16	21 1/16	34	.....	28
(k)	N	.....	HG	Al	.....	.859x2.81	4	1030	7	.....	1045	....	2.06x1.31	4	2.37x1.73	2.37x1.28	acdr	Car	1 5/16	660	21 1/16	23 1/16	41	.....	29
(k)	N	.....	HG	Alt	32	.859x2.81	4	1035	7	.....	1045	....	2.06x1.31	4	2.37x1.73	2.37x1.28	acd	Str	1 1/16	700	22	27	41	.....	30
(k)	N	.....	HG	Al	.....	.859x2.81	4	CS	7	.....	1045	Y	2.06x1.31	4	2.37x1.73	2.37x1.28	acdr	Zen	1 5/16	675	21 1/16	23 1/16	41	.....	31
(k)	N	.....	HG	Al	.....	1.10x3.43	5	1035	8 3/16	.....	1045	....	2.25x1.56	7	2.62x2.15	2.62x1.56	acdr	Zen	2	1050	24 5/16	25 1/16	49	.....	32
(k)	N	.....	HG	Alt	.....	1.10x3.43	5	1035	8 3/16	.....	1046	....	2.25x1.56	7	2.62x2.15	2.62x1.56	acd	Zen	.....	1050*	24 5/16	25 1/16	46 1/16	.....	33
(k)	N	.....	HG	Alt	.....	1.10x3.43	5	1035	8 3/16	.....	1046	....	2.25x1.56	7	2.62x2.15	2.62x1.56	a	Zen	.....	1070*	24 5/16	25 1/16	46 1/16	.....	34
(k)	N	.....	HG	Alt	.....	1.25x3.63	5	1035	8 3/16	.....	1045	....	2.50x1.65	7	2.87x2.71	2.87x1.65	a	Zen	.....	1245*	28 1/16	27 1/16	51 1/16	.....	35
(k)	N	.....	HG	Alt	.....	1.25x3.63	5	1035	8 3/16	.....	1045	....	2.50x1.65	7	2.87x2.71	2.87x1.65	a	Zen	.....	1250*	28 1/16	27 1/16	51 1/16	.....	36
(h)	N	.....	Ch	Alst	26.5	.931x3.19	3	1041	6 3/16	26.0	1046	....	2.25x2.00	5	2.50x1.27	2.50x.981	acdfg	Car	1 1/16	950	27 1/16	26 1/16	43 1/16	.....	37
(h)	N	.....	Ch	Alst	32.0	.931x3.19	3	1041	6 3/16	28+	1046	....	2.25x2.00	5	2.50x1.27	2.50x.981	acdfg	Car	1 1/16	950	27 1/16	26 1/16	43 1/16	.....	38
(h)	N	.....	Ch	Alst	25.8	.931x3.19	3	1041	6 3/16	26.0	1046	....	2.25x2.00	5	2.50x1.27	2.50x.981	acdfg	Car	1 1/16	950	27 1/16	26 1/16	43 1/16	.....	39
(h)	N	.....	Ch	Alst	32.0	.931x3.19	3	1041	6 3/16	28.0	1046	....	2.25x2.00	5	2.50x1.27	2.50x.981	acdfg	Car	1 1/16	950	27 1/16	26 1/16	43 1/16	.....	40
(h)	N	.....	HG	Al	.....	.859x2.68	4	1035	7	28.0	1045	....	1.93x1.31	3	2.25x1.89	2.25x1.18	acdr	Car	1 5/16	444	20 5/16	22 5/16	33	.....	41
(k)	N	.....	HG	Al	.....	.859x2.81	4	1030	7	.....	1045	....	2.06x1.31	4	2.37x1.73	2.37x1.28	acdr	Car	1 5/16	586	20 5/16	22 5/16	40 1/16	.....	42
(h)	N	.....	Ch	Alst	25.5	.931x3.19	3	1041	6 3/16	26.0	1046	....	2.25x2.00	5	2.50x1.27	2.50x.981	acdfg	Car	1 1/16	950	27 1/16	26 1/16	43 1/16	.....	43
(h)	N	.....	Ch	Alst	25.5	.931x3.19	3	1041	6 3/16	28.0	1046	....	2.25x2.00	5	2.50x1.27	2.50x.981	acdfg	Car	1 1/16	950	27 1/16	26 1/16	43 1/16	.....	44
(h)	N	.....	Ch	Alst	32.0	.931x3.19	3	1041	6 3/16	28.0	1046	....	2.25x2.00	5	2.50x1.27	2.50x.981	acdfg	Car‡‡	1 1/16	950	27 1/16	30 5/16	43 1/16	.....	45
45	Y	Ste	HG	Al	1.6	.848x3.43	3	1045	6 3/16	1.7	CA	Y	1.28x1.00	2	3.00x1.61	3.00x1.61	abcdef	Op	.....	274	24 1/16	32 5/16	20 1/16	.....	46
45	Y	Ste	HG	Al	1.6	.848x3.43	3	1045	6 3/16	1.7	CA	Y	1.28x1.00	3	2.62x1.12	2.62x2.00	abcdef	Op	1 1/2	463	28 1/16	30 7/16	22 5/16	.....	47
30	Op	Eat	HG	AC	21	.687x2.33	3	3140	5 1/16	15	4140	N	1.50x1.00	3	2.00x1.31	2.00x1.37	acg	Op	Op	179	16 1/16	16 1/16	23 1/16	5,6	48
30	Op	Eat	HG	Al	29.5	.75x2.81	3	3140	6 1/16	21	4140	N	1.75x1.12	3	2.00x1.56	2.00x1.62	acdg	Op	Op	293	17 5/16	19 1/16	26 1/16	4,5	49
45	N	.....	HG	Alt	40.3	1.13x3.03	3	3140	8	50.9	1046	....	2.00x1.31	4	2.88x1.16	2.88x1.16	abcdefg	Op	.....	475	22 1/16	32 1/16	28 1/16	2,3,4	50
45	N	.....	HG	Alt	43.4	1.13x3.34	3	3140	8	50.9	1046	....	2.00x1.31	4	2.88x1.16	2.88x1.16	abcdefg	Op	.....	475	22 1/16	32 1/16	28 1/16	2,3,4	51
45	N	.....	HG	Alt	40.3	1.13x3.03	3	3140	8	50.9	1046	....	2.00x1.31	5	2.88x1.16	2.88x1.16	abcdefg	Op	.....	500	22 1/16	33	31 1/16	2,3,4	52
45	N	.....	HG	Alt	43.4	1.13x3.34	3	3140	8	50.9	1046	....	2.00x1.31	5	2.88x1.16	2.88x1.16	abcdefg	Op	.....	500	22 1/16	33	31 1/16	2,3,4	53
30	Op	Eat	HG	Al	26	.878x2.92	4	1035	7	26	1046‡	Y	2.00x1.25	7	2.50x1.31	2.50x1.93	acg	Op	1 1/16	440	17 1/16	20 1/16	35 1/16	3,4,5	54
45	Op	Eat	HG	Al	37.8	1.00x3.26	4	3140	8	37	1046‡	Op	2.00x1.50	7	2.50x1.31	2.50x2.12	acg	Op	1 1/16	605	18 1/16	24 1/16	39	3,4,5	55
45	N	.....	HG	Alt	40.3	1.13x3.03	3	3140	8	50.9	1046	....	2.00x1.31	7	2.88x1.16	2.88x1.16	abcdefg	Op	.....	650	22 1/16	34 1/16	40 1/16	2,3,4	56
45	Op	Eat	HG	Al	40.5	1.00x3.51	4	3140	8	37	1046‡	Op	2.00x1.50	7	2.50x1.31	2.50x2.12	acg	Op	1 1/16	605	18 1/16	24 1/16	39	3,4,5	57
45	N	.....	HG	Alt	43.4	1.13x3.34	3	3140	8	50.9	1046	....	2.00x1.31	7	2.88x1.16	2.88x1.16	abcdef	Op	.....	650	22 1/16	34 1/16	40 1/16	2,3,4	58
30	Op	Eat	HG	Al	29.5	.750x2.81	3	3140	6 1/16	21.0	CS	N	1.75x1.12	3	2.00x1.56	2.00x1.62	acd	Op	Op	293	17 5/16	19 1/16	26 1/16	4,5	59
30	Op	Eat	HG	Alt	26.0	.875x2.92	4	1035	7	26.0	1046	Y	2.00x1.25	7	2.50x1.31	2.50x1.92	acg	Op	1 1/16	440	17 1/16	20 1/16	35 1/16	3,4,5	60
45	Op	Eat	HG	Al	40.5	1.00x3.51	4	3140	8	37.0	1046	Op	2.00x1.50	7	2.50x1.31	2.50x2.12	acg	Op	1 1/16	605	18 1/16	24 1/16	39	3,4,5	61
45	E	4140	Ch	Al	89	1.50x4.44	3	3135	9	93	4140	Y	3.00x2.06	7	3.24x1.67	3.25x2.38	acdefg	Hol	1 1/16	1130*	26 1/16	38 1/16	49 1/16	3	62
(h)	E	4140	Ch	Al	141	1.62x4.93	4	3140	11 1/16	148	4140	....	3.24x2.06	7	3.50x2.10	3.50x3.05	acdfg	Cgn	2 1/16	2150	30 1/16	48 1/16	60 1/16	1	63
30	E	4140*	HC	Al	128	1.37x4.94	6	3140	12	237.0	4140	Y	3.00x2.43	7	3.25x2.09	3.25x2.09	acdefgr	Zen(3)	2 1/16	3650*	45	47 1/16	58	.....	64
(h)	E	4140	Ch	Al	145.0	1.37x4.93	4	3140	11 1/16	148.0	4140	....	3.24x2.06	7	3.25x2.06	3.25x3.12	acdefg	Hol	1 1/16	2150	30 1/16	48 5/16	60 1/16	1	65
(h)	E	4140	HC	Al	120.0	1.62x4.93	5	3140	12	132.0	4140	Y	3.00x2.43	7	3.50x2.10	3.50x3.05	acdefg	Zen	2 1/16	2150	28	44 5/16	60 1/16	1,2,0	66
45	N	.....	Ch	Alst	.....	.912x3.02	3	Cas	4 1/16	.....	Al	....	2.12x.....	5	2.25x.....	2.25x.....	acdf	Car	1 1/16	390	24 1/16	22 1/16	39 1/16	.....	67
45	N	.....	Ch	Alst	26.7	.912x3.02	3	SF	6 1/16	24.2	Al	....	2.19x1.76	5	2.50x.728	2.50x.728	acdf	Car	1 1/16	640*	27 1/16	24 1/16	37 1/16	.....	68
45	N	.....	Ch	Alst	26.7	.912x3.02	3	SF	6 1/16	24.2	Al	Y	2.19x1.76	5	2.50x.907	2.50x.907	acdf	Car	1 1/16	640*	27 1/16	24 1/16	37 1/16	.....	69
45	N	.....	Ch	Alst	26.8	.912x3.02	3	SF	6 1/16	24.2	Al	Y	2.19x1.76	5	2.50x.907	2.50x.907	acdf	Car	1 1/16	640*	27 1/16	24 1/16	37 1/16	.....	70
45	N	.....	Ch	Alst	27.6	.912x3.02	3	SF	6 1/16	22.6	Al	Y	2.19x1.76	5	2.62x.907	2.62x.907	acdf	Car	1 1/16	640*	27 1/16	24 1/16	37 1/16	.....	71
45	N	.....	Ch	Alst	24**	.975x3.16	3	SF	6 1/16	26.7	Al	....	2.44x1.76	5	2.75x.907	2.75x.907	acdf	Car‡‡	.....	870*	29 1/16	32 1/16	44 1/16	.....	72
45	N	.....	Ch	Alst	29.8**	.975x3.49	3	1040	6 1/16	27.2	CAl	....	2.60x.....	5	2.90x.955	2.90x.955	acdf	Car‡‡	.....	995	36 1/16	32 1/16	44 1/16	.....	73
45	N	.....	Ch	Alst	.....	.912x3.02	3	Cas	.....	.....	Al	....	2.12x.....	5	.....	.....	acdf	Car	1 1/16	390	24 1/16	22 1/16	39 1/16	.....	74
45	N	.....	Ch	Alst	.....	.975x3.16	3	SF	6 1/16	.....	Al	....	2.44x1.76	5	2.75x.907	2.75x.907	acdf	Car‡‡	.....	870	29 1/16	32 1/16	44 1/16	.....	75
45	N	.....	HG	Cl	20.0	.688x2.19	3	SF	5	15.4	1046‡	Y	1.50x.756	3	1.62x1.30	1.62x1.34	acdg	Own	3/4	279*	16 1/16	25 1/16	23 1/16	5	76
45	N	.....	HG	Al	19.0	.859x2.75	3	SF	7 1/16	33.3	1015	Y	1.75x1.05	3	2.25x1.31	2.25x1.63	acdfg	M-Z	7/8	525	17	31 1/16	30 1/16	4	77
30	N	Eat	HG	Al	29.9	.875x2.95	3	SF	6 1/16	40.7	1046	Y	2.38x1.16	4	2.75x1.36	2.75x1.97	abcdfg	Zen	1 1/16	810	21 1/16	33 1/16	40 1/16	4	78
30	E	Sil	HG	Al	31.4	.875x2.95	3	SF	6 1/16	40.7	1046	Y	2.38x1.16	4	2.75x1.30	2.75x1.89	abcdfg	Zen	1 1/16	815	21 1/16	33 1/16	40 1/16	4	79
30	E	Sil	HG	Al	28.0	.875x2.95	3	1040	7 1/16	42.6	1046	Y	2.38x.968	4	2.75x1.21	2.75x1.81	abcdefg	Own	1 1/16	895	23 1/16	41 1/16	30 1/16	3	80
30	E	Sil	HG	Al	27.4	.875x2.95	3	1040	7 1/16	42.6	1046	Y	2.38x.968	4	2.75x1.21	2.75x1.81	abcdefg	Own	1 1/16	895	23 1/16	41 1/16	30 1/16	3	81
45	E	Eat	HG	Al	32.0	.919x3.20	3	SF	8 1/16	43.2	1046	Y	2.13x1.16	4	2.70x1.13	2.70x1.23	abcdfg	Zen	1 1/16	825	21 1/16	35 1/16	42 1/16	3	82
45	E	Eat	HG	Al	63.5	1.11x3.80	3	SF	9	61.0	1046‡	Y	2.75x1.38	7	3.25x1.31	3.25x1.84	abcdfg	Zen	1 1/16	1240*	25 1/16	37 1/16	47 1/16	1	83

For abbreviations, see pages 170 and 171

For Directory of the Engine Manufacturers listed above, see Page 53

1961 GASOLINE ENGINES FOR TRUCK, BUS,

Line Number	ENGINE MAKE AND MODEL	Designed for	Number of Cylinders, Bore and Stroke (In.)	MAXIMUM BRAKE Hp. at Specified R.P.M.		Piston Displacement (Cu. In.)	Compression Ratio	Maximum Torque at R.P.M. (Lb. Ft.) with or without Accessories	Cylinder Liners—Type	Crankcase—Upper Half Integral with Cylinders	VALVES									
				With Bare Engine	With Standard Accessories						Arrangement	Exhaust Head Material (S.A.E. No.)	Max. Head Diameter (In.)		Min. Port Diameter (In.)		Lift (In.)		Stem Diameter (In.)	
													Intake	Exhaust	Intake	Exhaust	Intake	Exhaust	Intake	Exhaust
1	International—Cont'd. U-450	T,Ind	6-4⅝x5	182-3000	126-2200	450.9	6.50	348-1350 (BE)	D	In	I	Sil°	2.25	1.78	2.00	1.60	.450	.450	.434	.434
2	U-501	T,Ind	6-4½x5⅛	212-2000	133-2200	501.0	6.50	394-1200 (BE)	N	In	I	Sil	2.25	1.78	2.00	1.60	.450	.450	.435	.434
3	U-1091	Ind	6-5¾x7	248-1600	232-1600	1090.6	9.10	880-1050 (BE)	D	In	I	CNS	2.53	2.09	2.31	1.88	.625	.625	.495	.494
4	UV-401	T,B,Ind	8-4⅛x3⅝	206-3800	160-2800	401.0	7.69	340-1800 (BE)	N	In	I	21-4N	2.16	1.81	1.94	1.63	.426	.426	.435	.434
5	UV-461	T,B,Ind	8-4⅛x4⅛	226-3800	170-2600	461.0	7.20	378-1900 (BE)	N	In	I	21-4N	2.16	1.81	1.94	1.63	.426	.426	.435	.434
6	UV-549	T,B,Ind	8-4½x4⅛	257-3400	208-2600	549.0	7.00	490-1800 (BE)	N	In	I	Sil	2.16	1.81	1.94	1.63	.426	.426	.435	.434
7	Mack Magnadyne EN331	T	6-4x4½	122-2800	114-2800	330.0	6.90	264-1400 (BE)	N	In	L	2112°	2.01	1.53	1.75	1.38	.430	.430	.435	.433
8	EN402	T	6-4⅛x5½	150-2800	142-2800	401.0	7.29	330-1400 (BE)	N	In	L	Sil (x)°	2.00	1.63	1.75	1.44	.430	.430	.438	.438
9	EN438	T	6-4⅛x5	160-2600	142-2600	438.0	7.23	350-1400 (BE)	N	In	I	Sil (x)°	2.10	1.55	1.88	1.38	.471	.471	.435	.433
10	EN540	T	6-4⅞x5½	185-2400	171-2400	540.0	7.22	445-1300 (BE)	N	In	I	Sil (x)°	2.10	1.75	1.86	1.56	.429	.429	.435	.433
11	EN707C	T	6-5x6	222-2100	204-2100	707.0	7.00	600-1200 (BE)	N	In	I	Sil (x)°	2.27	1.93	1.86	1.75	.500	.500	.498	.496
12	Minneapolis-Moline 165A	Tr	4-3⅝x4	42-1600	38-1600	165.0	7.35	141-1200 (BE)	N	Se	I	2112N	1.47	1.38	1.25	1.17	.469	.470	.341	.341
13	206H	Ind,Tr	4-3⅝x5	51-1550	45-1550	206.5	7.30	175-1300 (BE)	N	Se	I	2112N	1.47	1.38	1.25	1.17	.469	.470	.341	.341
14	V206B	Tr	4-3⅝x5	48-1550	45-1550	206.5	7.30	168-1100 (BE)	N	Se	I	2112N	1.47	1.38	1.25	1.17	.469	.470	.341	.341
15	283B	Tr,Ind	4-4¼x5	59-1300	57-1300	283.7	6.35	240-1200 (BE)	N	Se	I	2112N	1.72	1.59	1.50	1.37	.494	.495	.434	.434
16	283E	Tr	4-4¼x5	67-1500	61-1500	283.7	6.85	244-1300 (BE)	N	Se	I	2112N	1.72	1.59	1.50	1.37	.494	.495	.434	.434
17	403C	Tr,Ind	4-4⅝x6	80-1300	75-1300	403.2	5.90	250-1000 (BE)	N	Se	I	2112N	1.72	1.59	1.50	1.37	.494	.495	.434	.434
18	425A	Ind	6-4¼x5	83-1400	78-1400	425.5	6.85	325- 900 (BE)	N	Se	I	2112N	1.72	1.59	1.50	1.37	.494	.495	.434	.434
19	606A	Ind	6-4⅝x6	105-1200	99-1200	605.0	5.90	465- 800 (BE)	N	Se	I	2112N	1.72	1.59	1.50	1.37	.494	.495	.434	.434
20	800	Ind	6-5⅛x6	149-1300	142-1300	800.0	5.26	620-1100 (BE)	N	Se	I	2112°	1.84	1.72	1.62	1.50	.494	.495	.434	.434
21	336	Tr	4-4⅝x6	78-1500	72-1500	336.0	6.50	295-1100 (BE)	N	Se	I	Sil	1.72	1.60	1.48	1.36	.494	.495	.435	.435
22	Oliver 550	Tr	4-3⅝x3⅜	47-2000	44-2000	155.0	7.75	132-1200 (BE)	W	In	I	21-4N	1.46	1.40	1.32	1.25	.360	.360	.373	.372
23	770	Tr	6-3⅛x3⅜	.....	53-1750	216.5	7.30	171-1100 (EA)	W	In	I	21-4N	1.40	1.26	1.25	1.13	.313	.281	.373	.372
24	880	Tr	6-3⅜x4	.....	65-1750	265.0	7.30	214-1000 (EA)	W	In	I	21-4N	1.51	1.40	1.38	1.25	.344	.344	.373	.372
25	1800	Tr	6-3¾x4	87-2000	82-2000	265.0	8.50	235-1400 (BE)	W	In	I	21-4N	1.63	1.52	1.50	1.38	.403	.403	.373	.372
26	660	Tr	4-3⅝x3⅜	47-2000	44-2000	155.0	7.75	132-1200 (BE)	W	In	I	21-4N	1.46	1.40	1.32	1.25	.360	.360	.373	.372
27	Palmer PW-27	M	1-3½x3½	.....	8-2800	27.0	6.50	6-2800 (EA)	N	Se	L	Sil	1.34	1.34	1.15	1.15	.281	.281	.310	.310
28	IH-60	M	4-2⅝x2⅝	.....	22-3000	60.0	6.50	34-2000 (EA)	N	In	L	CNS	1.10	.910	.980	.790	.222	.222	.310	.310
29	PH-134	M	4-3½x4	.....	60-3200	133.0	7.20	92-2000 (EA)	N	In	L	CNS	1.48	1.35	1.25	1.12	.312	.312	.310	.310
30	IH-240-SM	M	6-3⅜x4	.....	120-3400	240.0	7.50	196-1800 (EA)	N	In	I	CNS	1.66	1.52	1.50	1.38	.398	.398	.372	.370
31	IH-264-SM	M	6-3⅛x4½	148-3400	135-3400	264.0	7.50	234-2000 (EA)	N	In	I	2I-4NS	1.66	1.52	1.50	1.38	.398	.398	.372	.370
32	IH-308	M	6-3⅛x4½	.....	150-3400	308.0	7.50	274-2000 (EA)	N	In	I	2I-4NS	1.81	1.61	1.69	1.44	.407	.406	.372	.372
33	IH-240	M	6-3⅜x4	.....	120-3400	240.0	7.50	196-1800 (EA)	N	In	I	CNS	1.66	1.52	1.50	1.38	.398	.398	.372	.370
34	IH-264	M	6-3⅛x4½	148-3400	135-3400	264.0	7.50	248-2400 (BE)	N	In	I	2I-4HS	1.78	1.52	1.63	1.31	.398	.398	.372	.372
35	IH-V345	M	8-3⅝x3⅜	.....	200-4000	345.0	8.20	309-2200 (BE)	N	In	I	21-4N	.....	.....	.....	.....	.....	.....	.373	.372
36	IH-V549	M	8-4⅛x4⅛	.....	300-3600	549.0	7.00	490-1800 (BE)	N	In	I	St	2.16	1.81	1.94	1.63	Hyd	Hyd	.435	.434
37	Red Wing Meteor 20	M	4-2½x3⅛	18-2600	16-2600	61.3	5.70	40-1700 (BE)	N	Se	L	Sil	1.12	.937	1.00	.812	.226	.250	.312	.312
38	Arrowhead 40	M	4-3¼x4	38-2600	35-2600	133.0	5.58	92-1200 (EA)	N	In	L	Sil	1.34	1.34	1.18	1.18	.281	.281	.312	.312
39	Arrowhead 50	M	4-3⅝x4½	43-2200	37-2200	186.0	5.50	128- 900 (EA)	N	In	L	Sil	1.56	1.56	1.37	1.37	.281	.281	.375	.375
40	Meteor 68	M	4-3½x4¼	.....	65-3200	141.0	6.50	.....	N	In	L	2112N	1.48	1.35	1.25	1.12	.250	.250	.310	.310
41	Meteor 115	M	6-3½x4¼	.....	115-3400	236.7	.....	.....	N	In	L	2112N	1.64	1.44	1.50	1.25	.311	.311	.310	.310
42	Meteor 160	M	6-4x4½	.....	160-3200	339.0	.....	.....	N	In	L	2112N	1.83	1.67	1.72	1.50	.356	.356	.373	.373
43	Reo *OA-142-LPG	T	6-4½x4⅛	142-3200	130-3200	331.0	8.20	258-1800 (BE)	W	In	I	2112	2.00	1.80	1.83	1.63	.420	.420	.438	.438
44	OH-170	T,B	6-4½x4⅛	170-3400	158-3400	331.0	7.50	297-1600 (BE)	W	In	I	Sil (x)	2.00	1.80	1.83	1.63	.420	.440	.438	.438
45	*OA-100-LPG	T	6-3⅝x4⅛	100-3400	86-3400	255.0	7.15	182-1600 (BE)	W	In	I	2112	2.00	1.80	1.83	1.63	.420	.420	.438	.438
46	*OH-160-LPG	T	6-4½x4⅛	160-3300	146-3200	331.0	8.20	280-1200 (BE)	W	In	I	Sil	2.00	1.79	1.85	1.62	.225	.236	.438	.438
47	OV-207	T	8-3⅞x4⅛	207-3400	186-3400	390.0	7.30	354-2400 (BE)	W	In	I	Sil (x)	2.00	1.80	1.83	1.63	.441	.466	.438	.438
48	OV-235	T	8-4⅛x4⅛	235-3400	213-3400	440.0	7.30	412-2400 (BE)	W	In	I	Sil (x)	2.00	1.80	1.83	1.63	.441	.466	.438	.438
49	OA-110	T,B	6-3⅝x4⅛	110-3400	98-3400	255.0	6.70	194-1400 (BE)	W	In	I	2112	2.00	1.83	1.80	1.63	.420	.420	.438	.438
50	OA-130	T,B	6-3⅞x4⅛	130-3300	119-3300	292.0	6.94	230-1600 (BE)	W	In	I	Sil (x)	2.01	1.80	1.83	1.62	.420	.420	.438	.438
51	OA-145	T,B	6-4⅛x4⅛	145-3200	134-3200	331.0	6.73	270-1600 (BE)	W	In	I	Sil (x)	2.00	1.83	1.80	1.63	.420	.420	.438	.438
52	OH-185	T,B	6-4½x4⅛	185-3400	170-3400	362.0	7.50	320-1200 (BE)	W	In	I	Sil (x)	2.00	1.79	1.76	1.62	.420	.440	.438	.438
53	Roiline TH-570	T,B,Ind	8-4⅝x4⅛	238-3000	205-2600	571.2	7.45	508-1800 (EA)	W	In	I	2112 (x	2.00	1.63	1.88	1.50	.400	.400	.438	.438
54	H844	Tr,Ind	8-5¼x4⅞	286-2400	270-2400	844.0	6.70	710-1700 (BE)	W	In	I	21-4N°	2.26	1.79	2.18	1.63	.450	.450	.435	.434
55	TH844	T,B	8-5¼x4⅞	298-2600	265-2600	844.0	6.70	730-1700 (BE)	W	In	I	2112 (y	2.26	1.79	2.18	1.63	.450	.450	.435	.434
56	H884	Tr,Ind	8-5⅝x4⅞	330-2600	300-2600	884.0	7.62	780-1800 (BE)	W	In	I	2112 (y	2.26	2.00	2.12	1.86	.480	.480	.434	.434
57	TH884	T,B	8-5⅝x4⅞	330-2600	300-2600	884.0	7.62	780-1800 (BE)	W	In	I	2112 (y	2.26	2.00	2.12	1.86	.480	.480	.434	.434
58	F1500	Ind	6-6¾x7	215-1200	205-1200	1503.0	5.06	1090- 650 (BE)	N	Se	I	Sil	2.81	2.81	2.12	2.50	.548	.548	.624	.624
59	F1500	Ind	6-6¾x7	230-1200	220-1200	1503.0	6.20	1165- 650 (BE)	N	Se	I	Sil	2.81	2.81	2.12	2.50	.548	.548	.624	.624
60	H2000	Ind	8-6¾x7	295-1200	275-1200	2004.0	5.06	1485- 650 (BE)	N	Se	I	Sil	2.81	2.81	2.12	2.50	.548	.548	.624	.624
61	H2000	Ind	8-6¾x7	300-1200	290-1200	2004.0	6.20	1590- 650 (BE)	N	Se	I	Sil	2.81	2.81	2.12	2.50	.548	.548	.624	.624
62	L3000	Ind	12-6¾x7	435-1200	410-1200	3006.0	5.06	2200- 650 (BE)	N	Se	I	Sil	2.81	2.81	2.12	2.50	.548	.548	.624	.624
63	L3000	Ind	12-6¾x7	470-1200	435-1200	3006.0	6.20	2360- 700 (BE)	N	Se	I	Sil	2.81	2.81	2.12	2.50	.548	.548	.624	.624
64	L3460	Ind	12-7¼x7	595-1350	586-1350	3468.0	4.57	2570- 900 (BE)	W	In	I	Sil	3.37	2.84	2.75	2.62	.625	.625	.622	.621
65	L3460	Ind	12-7¼x7	660-1350	640-1350	3468.0	6.73	2710- 900 (EA)	W	In	I	Sil	3.37	2.84	2.75	2.62	.625	.625	.623	.622
66	L4000	Ind	12-7½x7½	656-1350	636-1350	4018.0	4.95	2950- 800 (BE)	W	In	I	Sil	3.37	2.84	2.75	2.62	.625	.625	.623	.622
67	L4000	Ind	12-7½x7½	734-1350	713-1350	4018.0	7.00	3305- 800 (BE)	W	In	I	Sil	3.37	2.84	2.75	2.62	.625	.625	.623	.622
68	Seagrave 531	T	12-3¾x4	251-3850	225-3800	530.1	7.80	425-1300 (BE)	N	Se	L	Sil	1.78	1.56	1.63	1.38	.367	.367	.373	.372
69	906	T	12-4½x4⅝	320-2850	290-2850	906.5	6.74	675-1800 (BE)	D	In	I	Sil	2.10	2.00	1.88	1.75	.479	.479	.373	.372
70	Sterling Viking II-TC-8	Tr,Ind	6-8x9	.....	450-1200	2714.0	‡‡	2015- 900 (EA)	W	Se	I	Sil	2.59	2.59	.....	.....	.556	.556	.557	.557
71	Viking II-TC-8	Tr,Ind	6-8x9	.....	345- 900	2714.0	‡‡	2015- 900 (EA)	W	Se	I	Sil	2.59	2.59	.....	.....	.556	.556	.557	.557
72	Viking II-T-8	M	8-8x9	.....	600-1200	3619.0	5.20	2685- 900 (EA)	W	Se	I	Sil	2.59	2.59	.....	.....	.556	.556	.557	.557
73	Viking II-TC-8	Tr,Ind	8-8x9	.....	600-1200	3619.0	‡‡	2685- 900 (EA)	W	Se	I	Sil	2.59	2.59	.....	.....	.556	.556	.557	.557
74	Viking II-TC-8	Tr,Ind	8-8x9	.....	460- 900	3619.0	‡‡	2685- 900 (EA)	W	Se	I	Sil	2.59	2.59	.....	.....	.556	.556	.557	.557
75	Petrel-LC-6	Ind	6-5¼x6	.....	210-2000	780.0	6.00	550-1700 (EA)	N	Se	L	Sil	2.25	2.25	.....	.....	.475	.475	.437	.437
76	Petrel-L-6	M	6-5¼x6	.....	258-2500	780.0	6.00	550-1700 (EA)	N	Se	L	Sil	2.25	2.25	.....	.....	.583	.583	.437	.437
77	Studebaker 1E	T	6-3x4	.....	95-4300	169.6	8.00	146-1900 (EA)	N	In	I	2112N	1.59	1.41	1.44	1.25	.375	.375	.344	.344
78	3E, 5E	T	8-3⅞x3¼	.....	141-3800	259.2	7.50	225-2400 (EA)	N	In	I	2112N	1.66	1.53	1.49	1.37	.375	.375	.344	.344
79	6E, 7E	T	8-3¼x3⅝	.....	154-3800	289.0	7.50	260-2400 (EA)	N	In	I	2112N	1.66	1.53	1.49	1.37	.375	.375	.344	.344

For abbreviations, see pages 170 and 171

For Directory of the Engine Manufacturers listed above, see Page 53

TRACTOR, MARINE, OR INDUSTRIAL USE—*continued*

VALVES				PISTONS				CONNECTING RODS			CRANKSHAFT							CARBURETOR			OVERALL DIMENSIONS (In.)				
Seats													Crank-Pin	MAIN BEARINGS											
Angle (Deg.)	Inserts Used?	Insert Material (S.A.E. No.)	Camshaft Drive—Type	Material	Weight with Pins, Rings, Bushings (Oz.)	Piston Pin—Diameter and Length (In.)	Number of Rings per Piston	Material	Center to Center Length (In.)	Weight with Bushing and Cap (Oz.)	Material	Counter Balance Used	Diameter and Length (In.)	Number	Diameter and Length (In.) Front	Diameter and Length (In.) Rear	Oil Pressure to—	Make	Size	Engines Weight without Carburetor or Ignition (Lb.)	Width	Height	Length	Clutch Housing (S.A.E. Nos.)	Line Number
45	E	Eat	HG	Al	59.0	1.11x3.80	3	SF	9	61.0	1046	Y	2.75x1.38	7	3.25x1.31	3.25x1.84	abcdfg	Zen	1 1/2	1250*	25 3/8	37 11/16	47 3/16	1	1
45	E	Eat	HG	Al	60.0	1.11x3.80	3	SF	9	60.8	1046	....	2.75x	7	3.25x1.31	3.25x1.84	abcdfg	Zen	1 1/2	1320	26	37 11/16	47 3/16	1	2
45	E	3140	HG	Al	119.2	1.88x5.00	5	SF	13 1/4	253.5	1046	Y	3.63x2.38	7	4.13x1.75	4.13x1.75	abcdfg	Ens	2 1/2	3825*	36 7/8	55 1/8	70 1/8	0	3
45	E	Eat	HG	Al	46.0	1.31x3.01	3	SF	8 33/64	51.9	1046	....	3.13x2.38	5	2.63x.969	3.13x.953	abcdfg	Zen	1 1/4	1310	36 7/8	55 1/8	40 1/16	2	4
45	E	Eat	HG	Al	46.0	1.31x3.01	3	SF	8	51.0	1046	....	3.13x2.37	5	2.63x.969	3.13x.953	abcdfg	Zen	1 1/4	1320	36 7/8	40 1/16	40 1/16	2	5
45	E	Eat	HG	Al	56.5	1.31x3.26	3	SF	8	51.0	1046	Y	3.13x2.38	5	2.63x.969	3.13x.953	abcdfg	Hol‡‡	1 1/4	1350	36 7/8	40 1/16	40 1/16	2	6
(h)	E	Nif°	HG	Alt	52	1.12x3.45	5	4140	10 1/16	64	1046‡	Y	2.38x1.62	7	3.00x1.41	3.00x2.12	acdefg	Zen	1 1/4	920	28 1/8	35 7/8	44 1/16	3	7
(h)	E	Nif°(x	HG	Alt	51	1.13x3.45	5	4140	10 5/16	64	1046‡	Y	2.38x1.62	7	3.00x1.41	3.00x2.13	abcdfg	Zen	1 1/4	1070	28 5/8	36 1/16	45 5/16	3	8
(h)	E	Nif°	HG	Alt	70.4	1.31x3.83	4	4140	10 5/16	90.5	1046‡	....	2.75x1.58	7	3.50x1.69	3.50x2.22	abcdfg	Zen	2	1522	31 7/16	43 3/16	49 11/16	3	9
(h)	E	Nif°	HG	Alt	75.0	1.31x3.89	4	4140	10 1/2	85.2	1046‡	....	2.75x1.87	7	3.50x1.63	3.50x2.13	abcdfg	Zen	2	1545	31 7/16	43 3/16	49 11/16	2	10
(h)	E	Nif°	HG	Alt	93.0	1.44x4.43	5	4140	11 1/4	99.8	1050‡	....	3.00x2.26	7	4.00x1.56	4.00x2.18	abdefg	Zen	1 3/4	1902	28 1/4	49 1/16	51	1	11
45	E	E-S	HG	CI	53.3	1.00x3.00	4	1041	9 1/4	58.0	1046	N	2.62x1.50	3	2.75x1.75	3.00x2.18	acdefg	MaS	1	700*	20	36 1/4	38 5/16	.....	12
45	E	E-S	HG	CI	53.3	1.00x3.00	4	1041	8 3/4	50.0	1046	N	2.62x1.50	3	2.75x1.75	3.00x2.18	acdefg	MaS	1	720*	20	36 1/4	38 5/16	4	13
45	E	E-S	HG	CI	53.5	1.00x3.00	4	1041	8 3/4	50.0	1046	N	2.62x1.50	2	RB	Ba	acdefg	MaS	1	680*	33	34	31 1/2	.....	14
45	E	E-S	HG	CI	89.0	1.25x3.75	4	1041	10	94.0	1046	N	2.57x2.50	3	2.91x2.68	2.91x3.50	acdefg	MaS	1 1/4	1090*	24 3/8	24 7/8	42 3/4	2	15
45	E	E-S	HG	CI	89.0	1.25x3.75	4	1041	10	94.0	1046	N	2.57x2.50	3	2.91x2.68	2.91x3.50	acdefg	MaS	1 1/4	1090*	24	39 3/4	39 5/8	2	16
45	E	E-S	HG	Al	63.3	1.25x3.93	4	1041	11 1/4	123.0	1046	N	2.75x2.38	3	2.91x2.68	2.91x3.50	acdefg	MaS	1 1/4	1276*	24 5/8	43 1/4	42 7/8	2	17
45	E	E-S	HG	CI	89.0	1.25x3.75	4	1041	10	94.0	1046	Y	2.57x2.50	4	2.91x2.68	2.91x3.50	acdefg	Zen	1 1/2	≥2000*	24 5/8	42 3/4	56	2	18
45	E	E-S	HG	Al	122.0	1.25x3.93	4	1041	11 1/4	123.0	1045	Y	2.75x2.38	4	2.91x2.68	2.91x3.50	acdefg	Zen	1 1/2	≥2268*	26 1/2	45	56 3/4	1	19
45	E	E-S	HG	Al	112.0	1.75x4.53	4	1041	11 1/4	136.0	1046	Y	3.25x2.38	4	3.49x2.53	3.49x3.13	acdefg	Zen	1 3/4	≥2475*	26 3/4	47 3/16	61	1	20
45	E	St	HG	Al	63.3	1.25x3.93	4	1046	11 1/4	123.0	1046	....	2.91x2.50	3	3.13x2.81	3.94x3.50	acdefg	MaS	1 1/4	1300	.....	.....	.....	2	21
45	E	Al	HG	Alt	.....	1.25x2.75	4	1045	6 3/4	43.0	1045	Y	2.25x1.38	3	2.25x1.75	2.25x1.63	adfg	MaS	1	462	22 1/2	27 7/16	30 7/16	.....	22
45	E	Al	HG	Alt	.....	1.25x2.75	4	1045	6 3/4	43	1045	N	2.25x1.38	4	2.25x1.75	2.25x1.63	adfg	MaS	1	662	20 1/4	29 1/4	39 7/8	.....	23
45	E	Al	HG	Alt	66.0	1.25x3.00	4	1045	6 3/4	47	1045	N	2.44x1.38	4	2.63x1.88	2.63x1.75	adfg	Zen	1 1/4	704	20 1/4	31 3/4	41 1/2	.....	24
45	E	Al	HG	Alt	.....	1.25x3.00	4	1045	6 3/4	.....	1046	N	2.44x1.13	7	2.63x1.50	2.63x1.50	abcdefg	.....	1 1/4	800	17 3/4	28 5/8	43 5/8	.....	25
45	E	Al	HG	Alt	.....	1.25x2.75	4	1045	6 3/4	43.0	1045	Y	2.25x1.38	3	2.25x1.75	2.25x1.63	adfg	MaS	1	462	20 1/4	27 7/16	30 7/16	.....	26
45	N	.....	HG	Al	15	.750x3.00	3	1040	7	20	Al	Y	1.50x1.31	2	(‖)	(‖)	PS	Zen	3/4	150	15 3/4	18 1/2	20 7/16	.....	27
45	N	.....	HG	CI	20	.688x2.19	3	1035	5	16	C1045	Y	1.50x.875	3	1.62x	1.62x	acd	Zen	7/8	350	21	25 1/4	28 3/4	N	28
30	N	.....	HG	Al	20 1/2	.75x2.87	3	3140	6 1/8	23 1/2	CS‡	N	1.75x1.12	3	2.00x1.56	2.00x1.62	acd	Zen	1 1/4	460	24 1/2	20 1/2	31 1/2	.....	29
30	E	Duc	HG	Al	.....	.875x2.95	4	.....	6	.....	C1046	Y	2.38x1.50	4	2.75x1.38	2.75x1.94	acdfg	Car	1 1/2	850	30 1/4	28	46	6	30
30	E	SAC	HG	Al	31.4	.875x2.95	4	SF	6	40.7	1046	Y	2.38x1.50	4	2.75x1.38	2.75x1.94	acdfg	Car	1 1/2	850	30 1/4	38	46	6	31
15	E	SAC	HG	Al	40.2	.919x3.20	4	SF	8 1/8	43.2	1046	Y	2.13x1.44	4	2.70x	2.70x	acdfg	Zen	1 3/4	925	24 1/2	29 1/16	48 1/4	6	32
30	E	Duc	HG	Al	.....	.875x2.95	4	.....	6	.....	C1046	Y	2.38x1.50	4	2.75x1.38	2.75x1.94	acdfg	Car	1 1/2	850	24 1/2	28	46	6	33
30	E	Sil	HG	Al	31.4	.875x2.95	3	SF	6 1/16	40.7	1046	Y	2.38x1.16	4	2.75x1.30	2.75x1.89	abcdfg	Zen	1 1/4	850	24 1/2	33 1/16	46	4	34
45	E	St	HG	Al	.....	.....	3	.....	.....	.....	AS‡	.....	2.37x	5	2.75x	2.75x	abcdfg	R-P	1 1/2	900	27 1/2	24 1/2	40 1/2	.....	35
45	E	St	HG	Al	53.6	1.11x3.80	4	SF	8	51.0	1046‡	Y	3.13x2.38	5	3.13x.969	3.13x.969	abcdfg	R-P	1 1/16	1600	38	49 1/16	64 3/4	2	36
45	N	.....	HG	Al	8	.625x2.12	3	1045	6	14	1045	N	1.56x1.25	2	ND3207	ND3207	adg	MaS	3/4	240	18 1/4	19 1/16	27 7/16	.....	37
45	E	CA	HG	CI	30	.875x2.75	3	1045	7 1/4	29	1045	N	1.75x1.25	3	2.12x1.43	2.12x1.18	abcdg	Zen	1	490	21 3/4	24 1/16	35	.....	38
45	E	CA	HG	CI	45	1.10x3.06	4	1045	8 1/4	46	1045	N	2.00x1.50	3	2.00x2.50	2.00x1.67	abcdg	Zen	1	610	19 1/16	26 1/4	41	5	39
30	N	.....	HG	Al	29.5	.750x2.81	4	3140	6 1/16	21.0	4140	....	1.75x1.12	3	2.00x1.56	2.00x1.62	acdg	Zen	1	425	22 1/2	21	32 5/8	.....	40
30	N	.....	HG	Al	26.0	.875x2.92	3	1035	7	26.0	1046‡	....	2.00x1.25	7	2.50x1.31	2.50x1.93	acg	Zen	1 1/2	625	22 1/2	24	42 1/16	.....	41
30	N	.....	HG	Al	44.5	1.12x3.44	3	3140	8	39.2	1046‡	....	2.00x1.25	7	2.50x1.31	2.50x2.12	acg	Zen	1 3/4	825	22 1/2	25	46 1/2	.....	42
30	Bo	♣	HG	Al	41.4	1.13x3.59	4	1340	7 1/4	56	1045	....	2.18x1.62	7	2.51x1.62	2.51x1.62	acdfg	Ens	1 3/4	914*	25 1/2	34 1/16	45 1/16	3	43
30	E	St	HG	Als	42	1.13x3.59	4	1340	7 1/4	52	1045	....	2.31x1.30	7	2.75x1.30	2.75x1.30	acdfg	Zen	1 1/4	963*	24 1/16	33 7/16	45 7/16	3	44
30	Bo	Ste	HG	Al	29.9	1.13x3.11	4	1340	7 1/4	50.2	1045	....	2.18x1.38	7	2.50x1.34	2.50x1.34	acdfg	Ens	1 1/2	872*	25 1/2	34 1/16	45 1/16	3	45
30	Bo	♣	HG	Al	41.4	1.13x3.54	4	1340	7 1/4	52	1045	....	2.31x1.30	7	2.75x1.30	2.75x1.30	acdfg	Cen	1 1/4	995*	24 1/16	34 1/16	45 1/16	3	46
30	Bo	♣	HG	Al	39.2	1.06x3.37	4	1340	7 5/8	45	1045	....	2.50x.927	5	3.00x1.22	3.00x1.71	acdfg	Car	....	1211*	27 5/8	36 3/4	39 1/2	2	47
30	Bo	♣	HG	Al	39.2	1.06x3.59	4	1340	7 5/8	45	1045	....	2.50x.927	5	3.00x1.22	3.00x1.71	acdfg	Car	....	1211*	27 5/8	36 3/4	39 1/2	2	48
30	E	Eat	HG	Alt	31.9	1.12x3.11	4	1340	7 1/4	56	1045	....	2.17x1.38	7	2.51x1.34	2.51x1.34	acdfg	Car	1 1/2	872*	25 1/2	34 1/16	45 1/16	3	49
30	E	Eat	HG	Alt	34.7	1.12x3.59	4	1340	7 1/4	56	1045	....	2.17x1.38	7	2.50x1.34	2.50x1.34	acdfg	Zen	1 1/4	870*	25 1/2	34 1/16	45 1/16	3	50
30	E	Eat	HG	Alt	40.0	1.12x3.59	4	1340	7 1/4	56	1045	....	2.17x1.38	7	2.50x1.34	2.50x1.34	acdfg	Zen	1 1/4	872*	25 1/2	34 1/16	45 1/16	3	51
30	E	Eat	HG	Alt	46.4	1.06x3.59	4	1340	7 1/4	52	1045	....	2.31x1.30	7	2.75x1.30	2.75x1.30	acdfg	Hol	1 1/2	970*	25 1/2	34 1/16	45 1/16	2,3	52
45	Bo	St	HG	Alt	58.9	1.38x4.13	4	1045	8 1/8	61.2	1046	....	2.75x2.75	5	3.25x1.14	3.25x1.14	abcdef	Zen‡	1 3/4	1250	30 1/2	42	44 5/8	2	53
45	E	Sil°	HG	Al	99.0	1.50x4.56	4	1045	9 1/4	70.4	1046	Y	3.25x3.13	5	3.75x1.39	3.75x1.39	acdef	Zen	1 3/4	1870*	33 1/2	49	49 1/2	0,1	54
45	E	Sil°	HG	Al	99.0	1.50x4.56	4	1045	9 3/4	70.4	1046	Y	3.25x3.13	5	3.75x1.39	3.75x1.39	acdef	Zen	1 3/4	1900*	33 1/2	46	48 5/8	1	55
45	Bo	St	HG	Al	98.6	1.50x4.34	4	1045	9 3/4	70.4	1046	Y	3.25x3.13	5	3.75x1.39	3.75x1.39	acdef	Ens	2 1/2	1900	33 1/2	46	48 5/8	0,1	56
45	Bo	St	HG	Al	98.6	1.50x4.34	4	1045	9 3/4	70.4	1046	Y	3.25x3.13	5	3.75x1.39	3.75x1.39	acdef	Zen	1 3/4	1900	33 1/2	46	48 5/8	1	57
45	E	T-12	HG	Al	205.0	1.75x6.12	4	1045	14	236.0	4140	N	3.50x3.75	4	3.93x5.25	3.93x5.25	acdf	Zen(2)	1 3/4	3750	43	59	80	0,00	58
45	E	T-12	HG	Al	227.0	1.75x6.12	4	1045	14	238.0	4140	N	3.50x3.75	4	3.93x5.25	3.93x5.25	acdf	Ens(2)	1 3/4	3750	43	59	80	0,00	59
45	E	T-12	HG	Al	205.0	1.75x6.12	4	3140	15	240.0	1045	Y	3.50x3.75	3	3.93x5.25	3.93x5.25	acdf	Zen(2)	2	3900	45	65	64	00	60
45	E	T-12	HG	Al	227.0	1.75x6.12	4	3140	15	240.0	1045	Y	3.50x3.75	3	3.93x5.25	3.93x5.25	acdf	Ens	3	3900	45	67	64	00	61
45	E	T-12	HG	Al	205.0	1.75x6.12	4	3140	15	240.0	4140	N	3.50x3.75	4	3.93x5.25	3.93x5.25	acdf	Zen(4)	1 3/4	5300	45	65	78	00	62
45	E	T-12	HG	Al	227.0	1.75x6.12	4	3140	15	240.0	4140	N	3.50x3.75	4	3.93x5.25	3.93x5.25	acdf	Ens	3 1/2	5300	45	65	78	00	63
45	E	3140°	HG	Al	256.0	2.25x6.37	4	1040	15	282.0	1046	Y	5.00x4.75	8	5.50x2.38	5.50x4.31	acdef	Zen(4)	2	10300	49	75	99 5/8	00	64
45	Bo	3140°	HG	Al	256.0	2.25x6.37	4	1040	15	282.0	1046	Y	5.00x4.75	8	5.50x2.38	5.50x4.31	acdef	Ens(2)	3 1/2	10300	49	74 1/2	99 5/8	00	65
45	E	3140°	HG	Al	263.0	2.25x6.36	4	1040	15	282.0	1046	Y	5.00x4.75	8	5.50x2.38	5.50x4.31	acdef	Zen(4)	2	11500	49	75	130 1/4	00	66
45	Bo	3140°	HG	Al	263.0	2.25x6.36	4	1040	15	282.0	1046	Y	5.00x4.75	8	5.50x2.38	5.50x4.31	acdef	Ens(2)	3 1/2	11500	49	47 1/2	130 1/2	00	67
45	Bo	.....	Ch	Alt	34.3	1.00x3.28	3	4635	9 11/16	38.5	1046	....	2.25x1.00	7	2.88x1.56	2.88x2.38	abcdg	Zen(2)	1 3/4	1250	26	37 1/4	46 1/4	3	68
45	N	.....	HG	Alt	51.3	1.25x	4	1035	9 3/4	64.3	3140	....	2.75x1.44	7	3.38x2.06	3.38x2.75	abcdeg	Zen(2)	2	2100	28 1/2	53 1/2	57 5/8	1	69
45	E	T-12	Ch	Al	328	2.00x7.00	4	CS	18	416	CNS	Y	4.00x3.12	9	4.00x3.37	4.00x5.50	abcdeg	Zen(3)	2 1/2	7500	45	64 7/8	100 7/8	00	70
45	E	T-12	Ch	Al	328	2.00x7.00	4	CS	18	416	CNS	Y	4.00x3.12	9	4.00x3.37	4.00x5.50	abcdeg	Zen(3)	2 1/2	7500	45	64 7/8	100 7/8	00	71
45	E	T-12	Ch	Al	328	2.00x7.00	4	CS	18	416	CNS	Y	4.00x3.12	9	4.00x3.37	4.00x5.50	abcdeg	Zen(4)	2 1/2	9900	44 1/8	61 3/8	142 5/8	.....	72
45	E	T-12	Ch	Al	328	2.00x7.00	4	CS	18	416	CNS	Y	4.00x3.12	9	4.00x3.37	4.00x5.50	abcdeg	Zen(4)	2 1/2	9000	45	64 7/8	121 5/8	00	73
45	E	T-12	Ch	Al	328	2.00x7.00	4	CS	18	416	CNS	Y	4.00x3.12	9	4.00x3.37	4.00x5.50	abcdeg	Zen(4)	2 1/2	9000	45	64 7/8	121 5/8	00	74
45	E	T-12	HG	Al	91	1.43x4.37	5	1035	12 1/2	113	CNS	Y	2.50x2.12	7	3.00x1.75	3.00x2.87	abcdeg	Zen(2)	1 3/4	2300	33	41 1/2	59 1/2	1	75
45	E	T-12	HG	Al	91	1.43x4.37	5	1035	12 1/2	113	CNS	Y	2.50x2.12	7	3.00x1.75	3.00x2.87	abcdeg	Zen(2)	1 3/4	1900	33	34 1/2	73 5/8	.....	76
45	N	.....	HG	Alt	15.3	.750x2.63	3	C1041	6 3/16	19	C1045	Y	1.81x.875	4	3.06x1.03	3.06x1.50	acdf	Car	1 1/4	504	25 3/4	31 7/16	29 5/8	.....	77
45	N	.....	HG	Alt	23.5	.875x3.06	3	C1141	6 5/16	23.7	C1045	Y	2.00x.813	5	2.50x1.00	2.50x1.52	acdf	Str	1 1/4	710*	25 1/4	28 1/4	29 5/8	.....	78
45	N	.....	HG	Alt	23.5	.875x3.06	3	C1141	6 5/16	23.7	C1045	Y	2.00x.813	5	2.50x1.00	2.50x1.52	acdf	Str	1 1/4	725	25 1/4	28 1/4	29 5/8	.....	79

For abbreviations, see pages 170 and 171

For Directory of the Engine Manufacturers listed above, see Page 53

1961 GASOLINE ENGINES FOR TRUCK, BUS,

Line Number	ENGINE MAKE AND MODEL	Designed for	Number of Cylinders, Bore and Stroke (In.)	MAXIMUM BRAKE Hp. at Specified R.P.M.		Piston Displacement (Cu. In.)	Compression Ratio	Maximum Torque at R.P.M. (Lb. Ft.) with or without Accessories	Cylinder Liners—Type	Crankcase—Upper Half Integral with Cylinders	VALVES									
				With Bare Engine	With Standard Accessories						Arrangement	Exhaust Head Material (S.A.E. No.)	Max. Head Diameter (In.)		Min. Port Diameter (In.)		Lift (In.)		Stem Diameter (In.)	
													Intake	Exhaust	Intake	Exhaust	Intake	Exhaust	Intake	Exhaust
1	Universal BlueJacket TwinAFTL	M	2-3x3½	12-2200	.....	40.5	5.79	.....	N	In	L	Sil	1.68	1.68	1.50	1.50	.250	.250	.375	.375
2	..... Atomic Four-UJ	M	4-2⅞x3⅛	30-3500	.....	64.5	6.32	.....	N	In	L	Sil	1.21	1.03	1.06	.875	.240	.240	.312	.312
3	..... Atomic Four-UJVD	M	4-2⅞x3⅛	30-3500	.....	64.5	6.32	.....	N	In	L	Sil	1.21	1.03	1.06	.875	.240	.240	.312	.312
4	..... Utility Four-BN	M	4-2⅝x4	25-2200	.....	95.0	4.70	.....	N	In	L	Sil	1.25	1.25	1.12	1.12	.234	.234	.312	.312
5	..... Unimite Four-HF	M	4-3⅛x4¼	70-3500	.....	141.0	.....	.....	N	In	L	Aus	1.48	1.35	1.25	1.12	.250	.250	.310	.310
6	..... Unimite Four-HFVD	M	4-3⅛x4¼	70-3500	.....	141.0	.....	.....	N	In	L	Aus	1.48	1.35	1.25	1.12	.250	.250	.310	.310
7	..... Super Four LSG	M	4-3⅛x4½	55-3000	.....	149.3	5.70	.....	N	Se	L	Sil	1.56	1.56	1.37	1.37	.312	.312	.375	.375
8	..... Arrow 230	M	6-3⅛x4½	.....	100-3200	230.0	7.29	173-1800 (EA)	N	In	L	2112	1.61	1.39	1.50	1.25	.311	.311	.310	.310
9	..... Bluefin Y230	M	6-3⅛x4⅛	.....	113-3500	230.0	7.29	190-1600 (EA)	N	In	L	2112	1.61	1.39	1.50	1.25	.349	.349	.310	.310
10	..... Marlin 320	M	6-4x4⅛	.....	110-2500	320.0	6.84	243-1600 (EA)	N	In	L	2112	1.75	1.62	1.50	1.37	.356	.356	.372	.372
11	..... Tarpon 330	M	6-4x4¼	.....	140-3000	320.4	6.84	239-2400 (EA)	N	In	L	2112	1.83	1.68	1.72	1.50	.356	.356	.372	.372
12	..... Knight 350	M	6-4x4½	.....	165-3300	340.0	7.20	283-1400 (EA)	N	In	L	Aus	1.83	1.68	1.72	1.50	.400	.400	.372	.372
13	..... Little King LEV	M	8-3⅞x3⅛	.....	188-4000	283.0	8.00	263-3000 (EA)	N	In	I	21-4N	1.72	1.50	1.59	1.32	.269	.275	.342	.342
14	..... Big King NKEV	M	8-4⅛x3½	.....	277-4000	430.0	8.00	396-2900 (EA)	N	In	I	Aus	2.10	1.79	2.25	1.64	.222	.222	.371	.370
15	Waukesha ..... (12) ICK	Ind	4-2½x3⅛	18-2800	16-2400	61.3	5.70	41-1800 (BE)	N	Se	L	Sil	1.12	.937	1.00	.812	.228	.250	.312	.312
16	..... (12) FC	T,Tr,Ind	4-3¼x4	35-2400	30-2200	133.0	5.58	97-1400 (BE)	N	In	L	Sil	1.34	1.34	1.18	1.18	.281	.281	.312	.312
17	..... (11) 190GKB	T,Tr,Ind	4-3½x3¾	50-2400	41-2000	155.0	7.50	131-1400 (BE)	W	In	I	Sil	1.45	1.41	1.18	1.00	.312	.281	.373	.372
18	..... (12) XAH	T,Tr,Ind	4-3½x4½	47-2000	44-2000	188.0	5.50	131-1400 (BE)	N	In	L	Sil	1.56	1.56	1.37	1.37	.302	.275	.375	.375
19	..... (11) 185GLB	T,Tr,Ind	6-3⅛x3¾	67-2400	59-2200	216.0	6.75	176-1400 (BE)	W	In	I	Sil	1.31	1.12	1.18	1.00	.312	.281	.372	.373
20	..... (11) 190GLB	T,Tr,Ind	6-3¾x4	77-2200	68-2000	265.0	6.50	223-1200 (BE)	W	In	I	Sil	1.40	1.28	1.25	1.12	.359	.375	.375	.375
21	..... (11) 195GK	T,Tr,Ind	6-4⅛x4	103-2400	88-2200	320.0	6.20	241-1400 (BE)	N	In	I	Sil	1.84	1.59	1.69	1.44	.406	.411	.373	.372
22	..... (11) 195GKA	T,Tr	6-4⅛x4	122-3000	90-2200	320.0	6.20	244-1400 (BE)	N	In	I	Sil	1.84	1.59	1.69	1.44	.406	.411	.372	.372
23	**(11) 135GZ	T,B,Tr	6-4⅝x5	153-2800	130-2200	451.0	6.30	354-1200 (BE)	N	In	...	Sil	2.06	1.81	1.87	1.62	.452	.405	.434	.434
24	..... (11) 140GZ	T,B,Tr	6-4⅝x5½	170-2250	135-1800	554.0	6.40	453- 800 (BE)	W	In	...	Sil	2.12	1.56	1.87	1.37	.524	.524	.437	.437
25	**(11) 145GZ	T,B,Tr	6-5⅛x6	250-2400	185-2000	817.0	6.00	630-1100 (BE)	W	In	I	Sil	2.37	1.84	2.12	1.62	.594	.531	.497	.496
26	**(11) WAKC	T,Tr,Ind	6-6¼x6½	280-1800	255-1800	1197.0	5.20	1000-1000 (BE)	W	In	I	Sil	2.65	2.22	2.37	2.00	.656	.656	.500	.500
27	..... 135GZ	T,B,Tr,M,Ind	6-4⅝x5	143-2400	118-2000	451.0	6.30	348-1200 (BE)	N	In	I	Sil	2.06	1.81	.....	.....	.371	.350	.435	.434
28	*▼(12) NKRB	Ind	6-7x8¼	316-1150	276-1050	1905.0	6.50	1520- 800 (BE)	W	In	I	Sil	3.22	2.78	2.87	2.50	.709	.709	.620	.619
29	*(12) LRORB	Ind	6-8½x8½	432-1100	405-1000	2894.0	6.60	2260- 800 (BE)	W	Se	I	Sil	3.50	3.00	3.25	2.75	.750	.840	.562	.562
30	*(12) LRZB	Ind	6-9⅝x8½	515-1200	482-1100	3520.0	6.10	2775- 800 (BE)	W	Se	I	Sil	4.19	3.41	3.62	3.12	.770	.696	.681	.681
31	..... VLROB	Ind	12-8½x8½	900-1200	867-1200	5788.0	6.75	4530- 800 (BE)	W	In	I	Sil	.....	.....	.....	.....	.....	.....	.....	.....
32	Willys L4-134	C,Ind	4-3⅛x4⅜	60-4000	.....	134.2	6.48	105-2000 (BE)	N	In	L	CHS	1.53	1.47	1.34	1.28	.351	.351	.373	.372
33	..... F4-134	C,T,Ind	4-3⅛x4⅜	72-4000	.....	134.2	6.90	114-2000 (BE)	N	In	F	(o)	2.00	1.47	1.84	1.28	.260	.351	.374	.372
34	..... L6-226	C,T,Ind	6-3⅛x4⅜	105-3600	.....	226.2	6.86	190-1400 (BE)	N	In	L	Sil	1.52	1.33	1.38	1.19	.284	.284	.341	.339
35	Wisconsin VE-4	Tr,Ind	4-3x3⅛	21.5-2400	21.5-2400	91.9	5.53	50-1700 (EA)	N	Se	L	Aus	1.31	1.31	1.12	1.12	.275	.275	.309	.309
36	..... VF-4	Tr,Ind	4-3¼x3⅛	25-2400	25-2400	107.7	5.01	57-1700 (EA)	N	Se	L	Aus	1.31	1.31	1.12	1.12	.275	.275	.309	.309
37	..... VH-4	Ind	4-3¼x3¼	30-2800	30-2800	107.7	5.50	66-1700 (BE)	N	Se	L	Aus	1.31	1.31	1.12	1.12	.275	.275	.309	.309
38	..... VG4D	Ind	4-3½x4	37-2400	37-2400	154.0	5.01	94-1500 (EA)	N	Se	L	St	1.56	1.56	1.37	1.37	.275	.275	.309	.309
39	..... VR4D	Ind	4-4¼x4½	56.5-2200	56.5-2200	255.0	5.66	161-1300 (BE)	N	Se	L	St	2.00	2.00	1.81	1.81	.340	.340	.373	.373
40	Witte 98	Ind	1-5x5	12-1200	11.8-1200	98.2	5.60	48-1200 (BE)	W	In	I	Fec	2.13	2.13	1.88	1.88	.322	.322	.372	.372
41	 C	Ind	1-6x8	19.8- 750	19.4- 750	226.0	5.00	139 -750 (BE)	W	In	F	Fec	2.56	2.56	2.25	2.25	.531	.531	.434	.434

ABBREVIATIONS

*—Stellite faced.
•—Weight complete with ignition and carburetor.
**—Intake, Moly Iron; exhaust, Stellite Steel.
•—With rotators.
■—Also available in reduction gear models.
▼—Also available in R.H. rotation.
▼▼—High output.
‡—Tocco hardened.
◆—Weight per pair.
‡‡—5.20 for gasoline—6.00 for natural gas or butane.
‖—Dual throat.
▪▪—Weight of piston only.

♣—Liquid petroleum gas engine.
♣—Intake, Steel; exhaust, Stellite Steel.
‡‡—Four barrel carburetor.
♣—Hard faced.
(2)—Two used.
(3)—Three used.
(4)—Four used.
(11)—Automotive power ratings.
(12)—Industrial power ratings.
1—Intake, nickel alloy steel; exhaust,chrome steel alloy.
2—Intake, 45; exhaust, 47.
3—Stromberg, 1¼; Carter, 1½.
(a)—Main bearings.
(b)—Wristpins.
(c)—Connecting rods.
(d)—Camshaft.

(e)—Accessory drive.
(f)—Valve lifters or rocker arms and shafts.
(g)—Timing gears or chain.
(h)—Intake 30, Exhaust 45.
(i)—Cylinder walls.
(j)—Timken Cone 14138A, Cup 14276.
(k)—Intake 30, exhaust 44.
(l)—Intake, 31; exhaust, 46.
(n)—Intake, 45; exhaust, 44.
(o)—Uniloy 21-12 (Type 307) with valve rotators on 473.
(q)—Tocco hardened journals on VT-346 and VTX-346 models.
(r)—Reverse gear.
(t)—Tappets and valve mechanism.
(u)—Complete with SAE housing.

(x)—Sodium cooled.
(y)—Stellite faced, sodium cooled.
AC—Aluminum or cast iron.
AI—Alloy Iron.
Al—Aluminum alloy.
Ala—Aluminum alloy, anodized.
Als—Aluminum alloy with steel strut.
Alst—Aluminum alloy with steel strut, tin plated.
Alt—Aluminum alloy (Tin coated).
AS—Alloy steel.
Aus—Austenitic steel.
B—Buses.
Ba—Ball bearing.
BB—Ball & Ball
BE—Bare engine.
BG—Bevel gear.

For Directory of the Engine Manufacturers listed above, see page 53

Production of Internal Combustion Engines (Except Outboard, Automotive, and Aircraft) By Engine Operating Data and Type of Engines

As reported by the Industry Division, Bureau of the Census

Engine Operating Data	1959			1958			1957		
	Gasoline	Diesel	Gas	Gasoline	Diesel	Gas	Gasoline	Diesel	Gas
Revolutions per minute									
750 and under	31,617	483	2,957	33,960	517	2,159	56,116	833	2,699
751-1,500		41,199	7,984		36,075	8,208		40,931	11,765
1,501-2,999	530,592			483,786	95,144	4,562	422,479	85,197	6,418
3,000-3,999	6,247,554	138,227	4,434	4,894,460		.....	4,059,322		
4,000 and over	369,802			343,673	.....	.....	385,801	.....	.....
Method of cooling									
Air	6,799,499	179,909	.....	5,415,619	131,736	.....	4,552,274	126,961	.....
Liquid	380,066		15,375	340,260		14,929	371,444		20,882

TRACTOR, MARINE, OR INDUSTRIAL USE—*concluded*

VALVES: Seats: Angle (Deg.)	VALVES: Seats: Inserts Used?	VALVES: Seats: Insert Material (S.A.E. No.)	Camshaft Drive—Type	PISTONS: Material	PISTONS: Weight with Pins, Rings, Bushings (Oz.)	PISTONS: Piston Pin—Diameter and Length (In.)	Number of Rings per Piston	CONNECTING RODS: Material	CONNECTING RODS: Center to Center Length (In.)	CONNECTING RODS: Weight with Bushing and Cap (Oz.)	CRANKSHAFT: Material	CRANKSHAFT: Counter Balance Used	CRANKSHAFT: Crank-Pin: Diameter and Length (In.)	CRANKSHAFT: MAIN BEARINGS: Number	CRANKSHAFT: MAIN BEARINGS: Diameter and Length (In.): Front	CRANKSHAFT: MAIN BEARINGS: Diameter and Length (In.): Rear	Oil Pressure to—	CARBURETOR: Make	CARBURETOR: Size	Engines Weight without Carburetor or Ignition (Lb.)	OVERALL DIMENSIONS (In.): Width	OVERALL DIMENSIONS (In.): Height	OVERALL DIMENSIONS (In.): Length	Clutch Housing (S.A.E. Nos.)	Line Number
45	N	.....	HG	Al	15.3	.750x2.56	4	CS	7¼	26	CS	Y	1.75x1.37	2	1.75x1.87	1.75x2.00	acdg	Zen	7/8	300	20 7/16	22 5/8	28 1/2	.....	1
45	N	.....	HG	Al	.....	.688x2.16	3	CS	6	.....	CS	Y	1.56x1.23	2	1.99x1.62	1.99x1.25	acdgr	Zen	7/8	280	17 1/4	19	26 1/2	.....	2
45	N	.....	HG	Al	.....	.688x2.16	3	CS	6	.....	CS	Y	1.56x1.23	2	1.99x1.62	1.99x1.25	acdgr	Zen	7/8	348	17 1/4	19	35 11/16	.....	3
45	N	.....	HG	CI	19	.625x2.44	3	CS	7½	22	CS	N	1.50x1.75	2	1.50x2.75	1.50x2.75	acdg	Zen	1	347	17 7/16	21 7/16	34 1/16	.....	4
30	N	.....	HG	Al	29.5	.75x2.81	3	3140	6 7/16	21.0	4140	....	1.75x1.12	3	2.00x1.56	2.00x1.56	acdg	Zen	1¼	.....	24 1/2	21 5/8	31 11/16	.....	5
30	N	.....	HG	Al	29.5	.750x2.81	3	3140	6 7/16	21.0	4140	....	1.75x1.12	3	2.00x1.56	2.00x1.56	acdg	Zen	1¼	499	24 1/2	21 5/8	40 3/4	.....	6
45	N	.....	HG	Al	20	.875x2.75	4	Al	8½	30	CS	N	2.00x1.75	3	2.00x2.50	2.00x2.50	acd	Zen	1½	524	18 1/2	25 1/4	39 3/4	.....	7
30	N	.....	HG	Al	26.0	.875x2.90	3	1035	7	26.0	3140‡	N	2.00x1.25	7	2.50x1.31	2.50x1.93	acdgr	Zen	1½	780	24 1/4	23 1/2	45 5/8	6	8
30	N	.....	HG	Al	26.0	.875x2.90	3	1035	7	26.0	3140‡	N	2.00x1.25	7	2.50x1.31	2.50x1.93	acdgr	Zen	1½	714	24 1/4	23 1/2	43 1/4	6	9
30	N	.....	HG	Al	40.5	1.00x3.50	3	1040	8	37.0	3140‡	N	2.00x1.50	7	2.50x1.31	2.50x2.12	acdgr	Zen	1½	920	24 1/4	25	49 1/2	6	10
30	N	.....	HG	Al	40.5	1.00x3.50	4	1040	8	37.0	3140‡	....	2.00x1.50	7	2.50x1.31	2.50x2.12	acdgr	Zen	1½	925	24 1/4	25	47 1/2	6	11
30	N	.....	HG	Al	44.5	1.12x3.44	3	1035	8	39.2	3140‡	Y	2.00x1.50	7	2.50x1.31	2.50x2.12	abcdgr	Zen	2	935	24 1/4	25	47 1/2	6	12
48	.....	.....	Ch	Alst	29.0	.927x3.00	3	C1037	5 11/16	20.0	C1045	....	2.00x1.90	5	2.30x1.69	2.30x.802	acdf	C-R	.....	665	27 3/4	29 1/16	39 1/4	.....	13
45	N	.....	HG	Alt	40.0	.975x3.49	3	1041	6 13/16	27.0	PNI	....	2.80x2.00	5	2.90x.955	2.90x.955	acdf	Car‡‡	.....	1022	36 1/4	32 1/16	44 1/16	.....	14
45	N	.....	HG	Al	.....	.625x2.12	4	1045	6	14	1045	N	1.56x1.25	2	ND1207	ND1207	ad	Op	5/8	195	±4 11/16	20 1/2	21 11/16	6	15
45	E	CA	HG	CI	.....	.875x2.75	3	1045	7 1/4	29	1045	N	1.75x1.06	3	2.12x1.18	2.12x1.43	abcdg	Op	3/4	290	19	29 1/16	27 5/8	5	16
44½	N	.....	HG	Al	.....	1.25x2.75	4	1045	6 5/8	31½	1045	Y	2.25x1.38	3	2.25x1.63	2.25x1.63	acdg	Op	1	450	19	27 1/4	30 5/8	4	17
45	E	CA	HG	CI	.....	1.12x3.03	4	1045	8 3/4	46	1045	N	2.00x1.50	3	2.00x1.88	2.00x2.50	abcdg	Op	1	385	19	26 5/8	32 1/8	5	18
45	N	.....	HG	Al	.....	1.25x2.75	4	1045	6 3/4	.....	1045	Y	2.00x1.38	4	2.25x1.63	2.25x1.63	abcdfg	Op	1	740	22	29	40 3/4	3	19
44½	N	.....	HG	Al	.....	1.25x3.00	4	1045	6 3/4	.....	1045	N	2.25x1.37	4	2.63x1.88	2.63x1.75	abcdfg	Op	1	690	22	29	42 5/8	3	20
44½	E	CA	HG	Al	.....	1.25x3.43	4	1045	6 3/4	.....	1045	N	2.62x1.38	4	2.63x1.88	2.63x1.75	abcdfg	Op	1 5/8	800	22	30 1/4	43	3	21
44½	E	CA	HG	Al	.....	1.25x3.44	4	1045	6 3/4	47¼	1045	Y	2.62x1.38	4	2.63x1.88	2.63x1.75	abcdfg	Op	1 5/8	775	26	30 1/4	43 1/2	3	22
45	E	St	HG	Al	.....	1.50x3.62	4	1045	9½	.....	1045	N	3.00x1.62	7	3.25x1.90	3.25x2.50	abcdfg	Op	1 5/8	1325	26	37 1/2	48 7/16	3	23
(h)	E	CA	HG	Al	.....	1.37x3.87	4	1045	10¼	85	1045	N	2.62x2.00	7	3.25x1.89	3.25x3.00	abcdfg	Op	1 3/4	1390	23 5/8	41 5/8	50 1/2	3	24
(h)	E	St	HG	Al	.....	1.62x4.50	4	1045	11¾	133	1045	N	3.00x2.25	7	3.50x2.00	3.80x3.50	abcdfg	Op	2	1810	25 1/4	46 5/8	57 1/2	2	25
(h)	E	St	HG	Al	.....	1.87x5.50	4	1045	13¼	195	1045	N	3.37x2.37	7	4.00x2.19	4.00x3.25	abcdfg	Op	2	3050	30 5/8	50 7/8	65 1/2	0	26
45	E	St	HG	Al	.....	1.50x3.63	4	1045	9½	.....	1045	....	3.00x1.62	7	3.25x1.90	3.25x2.50	abcdfg	Op	1¾	1325	26	37 1/2	46 7/16	3	27
(h)	E	CA	HG	CI	.....	2.50x6.03	4	1045	15⅝	.....	1045	Y	4.37x2.75	7	5.25x3.44	5.25x5.56	abcdfg	Op	2½	5900	42	60 11/16	82 1/16	00	28
! 30	E	CA	HG	CI	.....	2.25x7.75	5	1045	18⅜	474	1045	Y	4.00x3.75	7	4.25x4.81	4.25x5.50	abcdfg	Op	2½	9940	48 1/2	65	95 1/16	00	29
! (h)	E	CA	HG	CI	.....	3.00x8.25	5	1045	21⅝	.....	1045	Y	5.00x3.75	7	5.50x4.75	5.50x5.50	abcdfg	Op	4	11250	48 1/2	72	98 9/16	00	30
.....	Bo	St	HG	Al	.....	3.00x7.00	5	4145	18	.....	1046	....	5.75x3.06	7	6.25x4.75	6.25x4.75	abcdefg	.....	4	15000	67	75 1/2	130	00	31
45	E	Eat	HG	Alt	19	.812x2.78	3	1141	9 1/16	32.0	1040	Y	1.94x1.31	3	2.33x1.64	2.33x1.66	acdg	Car	1½	344	19	28 1/16	26 1/4	5,4	32
45	E	Eat	HG	Alt	19	.812x2.78	3	1141	9 1/16	32.0	1040	Y	1.94x1.31	3	2.33x1.64	2.33x1.66	acdfg	Car	1½	390	19 1/2	30 1/4	26	5,4	33
(h)	E	Eat	Ch	Alt	20.9	.859x2.78	4	1035	7	29.6	1045	....	2.06x1.53	4	2.36x1.06	2.36x1.32	acdg	Car	1 11/16	558	25 5/8	33	40 1/2	4	34
45	Bo	MI	HG	Al	14.6	.750x2.56	4	1035	8 5/8	22	1045	N	1.75x1.12	2	Timken	Timken	PJ	Zen	7/8	295*	21 1/2	28 7/8	25 1/2	.....	35
45	Bo	MI	HG	Al	16.1	.750x2.56	4	1035	8 5/8	22	1045	N	1.75x1.12	2	Timken	Timken	PJ	Zen	7/8	295*	21 1/2	28 7/8	25 1/2	.....	36
45	Bo	MI	HG	Al	16.0	.750x2.55	4	1035	8 5/8	20.5	1045	Y	1.88x1.13	2	Timken	Timken	PJ	M-Z	7/8	310*	21 1/2	27 1/2	25 1/2	.....	37
45	Bo	**	HG	Al	22.5	.937x2.75	4	1035	8 5/8	30.7	1045	Y	2.13x1.31	2	Timken	Timken	PJ	M-Z	1	410*	24	29	28 1/2	.....	38
45	Bo	**	HG	Al	36.0	1.25x3.40	4	1035	9½	47.6	1045	Y	2.75x1.38	2	Timken	Timken	PJ	Zen	1¼	775*	28	37 11/16	31 5/8	.....	39
45	Bo	HFA	G	Al	94.1	1.50x4.38	4	1035	10	102.5	1046	....	2.25x2.38	2	TRB	TRB	Splash	Tll	1	655	31 1/2	35 11/16	33 7/16	6	40
45	Bo	HFA	SG	CI	37.8	1.81x5.09	6	1035	18	292	1045	....	2.88x3.00	2	TRB	TRB	f	Own	1 7/16	1610	44 7/16	48 5/8	56 1/4	5	41

Bo—Used in both intake and exhaust seats.
C—Cars.
CA—Cast alloy.
CAI—Cast alloy iron.
Car—Carter Carburetor Corp.
Cas—Cast steel.
Cen—Century.
Ch—Chain.
CHS—Chrome nickel silicon steel.
CI—Cast iron.
CNS—Chrome nickel steel.
C-R—Carter or Rochester.
CS—Carbon steel.
D—Dry liners.
DFS—Drop forged steel.
Duc—Durachrome.
E—Used on exhaust valve seats.
EA—Engine with standard accessories.
Eat—Eatonite.
Ens—Ensign.
E-S—Eatonite or stellite steel.
F—F-head.
Fec—Ferchrome.
G—Gear.
GP—General purpose.
HAS—High alloy steel.
HC—Helical gear and chain.
HFA—Hard facing alloy.
HG—Helical gear.
Hol—Holley Carburetor Co.
Hyd—Hydraulic valve lifters.
I—In head (Valves).
In—Integral.
Ind—Industrial.
L—Valves at side (L-Head).
M—Marine.
MA—Manganese alloy.
MaS—Marvel-Schebler Carburetor Div.
MI—Moly Iron.
MS—Manganese steel.
N—No or none.
Nif—Nifferrite.
Op—Optional.
PJ—Pump jet.
PNI—Pearlitic nodular iron.
PS—Pressure stream.
RB—Roller bearing.
R-P—Rochester Products.
SA—Special alloy.
SAC—Super alloy casting.
S-C—Stromberg or Carter.
Se—Separate.
SF—Steel forging.
SG—Spur gear.
Sil—Silichrome steel.
Spec—Special.
SS—Semi-steel.
St—Stellite steel.
Ste—Steel.
Str—Stromberg-Elmira Div.
T—Trucks.
TCA—Tungsten cobalt alloy.
Tll—Tillotson Mfg. Co.
TP—Thompson Products.
Tr—Tractors.
TRB—Tapered roller bearings.
W—Wet liners.
Y—Yes.
Zen—Zenith Carburetor Div.

For Directory of the Engine Manufacturers listed above, see Page 53

Production of Motorized Fire Apparatus

As reported by the Industry Division, Bureau of the Census

Class of Apparatus	Year, 1960: Total Produced	Year, 1960: Production of Body and Equipment mounted on—: Produced Chassis	Year, 1960: Production of Body and Equipment mounted on—: Purchased Chassis	Year, 1959: Total Produced	Year, 1959: Production of Body and Equipment mounted on—: Produced Chassis	Year, 1959: Production of Body and Equipment mounted on—: Purchased Chassis	Year, 1958: Total Produced	Year, 1958: Production of Body and Equipment mounted on—: Produced Chassis	Year, 1958: Production of Body and Equipment mounted on—: Purchased Chassis
Pumpers									
Under 750 g.p.m.	1,723	264	871	1,819	314	924	1,039	76	963
750 g.p.m.			588			581	864	351	513
1000 g.p.m. and over	487	384	103	383	328	55	357	320	37
Total—Pumpers	2,210	648	1,562	2,202	642	1,560	2,260	747	1,513
Aerial Apparatus	157	123	34	166	124	36	113	86	27
Miscellaneous[1]	251	68	183	270	139	131	326	211	115
Total—All Apparatus	2,618	839	1,779	2,632	905	1,727	2,699	1,044	1,655

[1]—Includes crash trucks, hose cars, squad cars, etc.

DIESEL ENGINES 1961

TRUCKS • BUSES • TRACTORS

Line Number	Engine Make and Model	Built Under License from	GENERAL															VALVES	
			Designed for	Type	Number of Cylinders Bore and Stroke (In.)	Cylinder Liners—Type	Cycle	Piston Displacement (Cu. In.)	With Bare Engine: Maximum Brake Hp. at Specified R.P.M.	With Standard Accessories: Max. Intermittent Hp. at Specified R.P.M.	With Standard Accessories: Continuous Sustained Hp. at Specified R.P.M.	Compression Ratio—to 1	Max. Combustion Pressure (Lb. per Sq. In.)	B.M.E.P. at Continuous Hp. (Lb. per Sq. In.)	Weight per Continuous Hp. (Lb.)	Max. Torque in Lb. Ft. at Specified R.P.M.	Shipping Weight (Lb.): Automotive or Industrial	Shipping Weight (Lb.): Marine	Arrangement	Intake Port Diameter and Lift (In.)
1	Allis-Chalmers	6DA-273	Own	I	EC	6-3⅛x4½	N	4	273	74-2100	58-2000	51-2000	14.20	825	74.0	16.3	204-1400	830	.....	VI	1.83-.439
2		6DCB-1879	Own	R,I	EC	6-6⅛x8½	W	4	1879	282-1300	232-1200	208-1200	13.00	725	73.1	33.4	1400-800	6950	.....	VI	2.50-.687
3		6DCS-1879	Own	I	EC	6-6⅛x8½	W	4	1879	340-1300	290-1200	265-1200		725	93.1		1580-700		.....	VI	2.50-.687
4		8DC-2505	Own	I	EC	8-6⅛x8½	W	4	2505	388-1300	312-1200	265-1200	13.00	625	69.8	37.0	1900-800	9800	.....	VI	2.50-.687
5		8DCS-2505	Own	I	EC	8-6⅛x8½	W	4	2505	516-1300	400-1200	350-1200	13.00	675	92.2	30.0	2390-800	10500	.....	VI	2.50-.687
6		6DCBMR-1879	Own	M	EC	6-6⅛x8½	W	4	1879		262-1200	235-1200	13.00	725	82.5		1400-800		.....	VI	2.50-.687
7		8DCMR-2505	Own	M	EC	8-6⅛x8½	W	4	2505		350-1200	306-1200	13.00	825	80.6	40.4	1900-800	.....	12350	VI	2.50-.687
8		8DCSMR-2505	Own	M	EC	8-6⅛x8½	W	4	2505		445-1200	400-1200	13.00	875	105.4	32.5	2390-800	.....	13000	VI	2.50-.687
9		D-344	Own	I	EC	4-4⅛x5½	W	4	344	88-1800	68-1800	64-1800	14.90		82.2		280-1000	.....	.....	VI	1.69-.429
10		4BD-175	Lanova	Tr	EC	4-3⅞x4½	W	4	175				15.30	725	70.0	28.1	104-1400	760	.....	VI	1.38-.429
11		D-262	Own	Tr	EC	6-3⅞x4½	W	4	262	62-1650			15.30				212-1300	.....	.....	VI	1.25-.....
12		D-273	Own	M	EC	6-3½x4½	N	4	273	74-2000	57-2000	51-2000	14.50		74.0	13.7	188-1300	.....	700	VI	1.53-.440
13		16000	Own	Tr,M,I	DI	6-5¼x6½	W	4	844	230-2000	190-1800	170-1800	14.50	470	88.0	17.8	640-1400	3050	3950	VI	1.38-.544
14		21000	Own	Tr,M,I	DI	6-5¼x6½	W	4	844	340-1800	265-1800	225-1800	14.50	470	112.0	14.1	925-1400	3165	4085	VI	1.38-.544
15		10000	Own	T,Tr,M,I	DI	6-4⅞x5½	W	4	516	145-2200			16.20						2700	VI	1.56-.482
16		11000	Own	T,Tr,M,I	DI	6-4⅞x5½	W	4	516	210-2200			16.20						2750	VI	1.56-.482
17	American Mare	AC1	.....	Tr,M,I	TC	1-3½x3¾	N	4	35	9.5-3000	8.5-2500	6.8-2000	20.00	850	77.0	30.1	22.5-1500	205	.....	VI	1.06-.360
18		WC1	.....	M,I	PC	1-3½x3¾	N		35	10-3000	8.8-2500	6.8-2000	20.00	850	77.0	30.1	22.5-1500	205	.....	VI	1.06-.360
19		AC2	.....	Tr,M,I	PC	2-3½x3¾	N	4	72	19.5-3000	17-2500	14-2000	20.00	850	77.0	25.0	46-1500	350	380	VI	1.06-.360
20		WC2	.....	Tr,M,I	PC	2-3½x3¾	N		72	20.5-3000	17.8-2500	14-2000	20.00	850	77.0	25.0	46-1500	350	.....	VI	1.06-.360
21		10	.....	M	DI	1-2⅝x4	D	2	22	9.3-3500	9.3-3500	.....	20.00	1000	.....	.....	18-2250	.....	100	.....	.....
22	Barr	FDX220	.....	M	.....	4-3⅛x4⅜	W	4	220	.....	.....	60-2250	16.00	.....	96	14.2	151-1600	.....	850	VI	.....
23		FDY330	.....	M	.....	6-3⅛x4⅜	W	4	330	.....	105-2500	96-2250	16.00	.....	102	13.0	236-1600	.....	1250	VI	.....
24	B & W Lathrop	D-110V	.....	M	.....	6-3¾x4½	.....	4	298	110-2800	106-2500	96-2200	17.80	.....	114	10.3	240-1600	.....	950	VI	.....
25		D-110H	.....	M	.....	6-3¾x4½	.....	4	298	110-2800	106-2500	96-2200	17.80	.....	114	10.3	240-1600	.....	950	VI	.....
26	Caterpillar	D311	Own	Tr,M,I	PC	4-4x5	W	4	252		75-2400	50-2000	18.00	.....	78	24.8	190-1800	1228	1225	VI	1.50-.429
27		D320*	Own	Tr,M,I	PC	4-4x5	W	4	252		105-2400	70-2000	18.00	.....	109	18.8	260-1630	1300	1400	VI	1.70-.440
28		D320[1]	Own	M,I	PC	4-4x5	W	4	252		130-2400	80-2000	18.00	.....	125	16.8	325-1700	1340	1440	VI	1.70-.440
29		D330*	Own	Tr,M,I	PC	4-4⅛x5½	W	4	350		135-2200	100-2000	18.00	.....	113	16.0	345-1730	1600	1630	VI	1.90-.490
30		D330[1]	Own	M,I	PC	4-4⅛x5½	W	4	350		180-2200	120-2000	18.00	.....	136	13.6	450-1800	1630	1660	VI	1.90-.490
31		D333*	Own	Tr,M,I	PC	6-4⅛x5½	W	4	525		205-2200	150-2000	18.00	.....	113	14.0	555-1600	2100	2295	VI	1.90-.490
32		D333[1]	Own	M,I	PC	6-4⅛x5½	W	4	525		270-2200	180-2000	18.00	.....	136	11.9	695-1800	2140	2335	VI	1.90-.490
33		D342	Own	M,I	PC	6-5⅜x8	W	4	1246		225-1300	170-1200	15.70	.....	90	30.2	950-900	5140	5500	VI	2.06-.588
34		D342*	Own	Tr,M,I	PC	6-5⅜x8	W	4	1246		320-1300	220-1200	15.70	.....	116	24.2	1390-1000	5340	5500	VI	2.06-.588
35		D353*	Own	Tr,M,I	PC	6-6⅛x8	W	4	1473		390-1300	300-1200	15.30	.....	134	20.8	1670-1000	6230	6610	VI	2.28-.579
36		D375	Own	M,I	PC	8-5⅜x8	W	4	1662		275-1300	238-1200	16.00	.....	95	36.3	1140-800	8650	11400	VI	2.06-.588
37		D375[2]	Own	M,I	PC	8-5⅜x8	W	4	1662		350-1300	302-1200	16.00	.....	120	28.8	1570-800	8650	11400	VI	2.06-.588
38		D375*	Own	M,I	PC	8-5⅜x8	W	4	1662		430-1300	325-1200	16.00	.....	129	26.8	1900-1000	8650	11400	VI	2.06-.588
39		D375[1]	Own	Tr,M,I	PC	8-5⅜x8	W	4	1662		485-1300	400-1200	16.00	.....	159	22.4	2100-1050	8960	11400	VI	2.06-.588
40		D397	Own	M,I	PC	12-5⅜x8	W	4	2493		415-1300	380-1200	16.00	.....	96	31.3	1800-900	11250	11650	VI	2.06-.588
41		D397[2]	Own	M,I	PC	12-5⅜x8	W	4	2493		520-1300	450-1200	16.00	.....	119	25.0	2375-800	11250	11650	VI	2.06-.588
42		D397*	Own	M,I	PC	12-5⅜x8	W	4	2493		650-1300	500-1200	16.00	.....	133	22.5	2800-1000	11250	11650	VI	2.06-.588
43		D397[1]	Own	M,I	PC	12-5⅜x8	W	4	2493		730-1300	600-1200	16.00	.....	159	19.5	3150-1050	11700	11650	VI	2.06-.588
44		1673[1]	Own	T	PC	8-4⅛x5½	W	4	525			220-2200	18.00	.....	166	9.4	587-1700	2070	.....	VI	1.90-.490
45		D343[1]	Own	Tr,M,I	PC	6-5⅛x8½	W	4	893		460-2000	310-1800	16.50	.....	153	13.4	1124-1570	4150	4150	VI	1.56-.....
46	Certist	3	List	Cr,T,B,Tr,M,I	PC	3-4x4½	W	2	170	96-3000	75-3000	65-2600	22.00	1280	65	8.4	170-1800	605	775	N	.....
47		V-6	List	Cr,T,B,Tr,M,I	PC	6-4x4½	W	2	340	220-3000	180-3000	150-2600	22.00	1280	65	6.3	350-1800	940	.....	N	.....
48	Continental	GD-157	Own	I,M	TC	4-3⅝x4½	W	4	157	39-2000			15.5	.....	.....	.....	113-1200	605	.....	VI	1.18-.375
49		HD-243	Own	I	TC	4-3⅝x5½	W	4	243	64-2000			15	.....	.....	.....	174-1400	940	.....	VI	1.37-.325
50		HD-260	Own	I	TC	4-3⅞x5½	W	4	260	74-2400			15	.....	.....	.....	192-1200	940	.....	VI	1.37-.325
51		TD-427	Own	I	TC	6-4⅛x4½	N	4	427	132-2200			14.5	.....	.....	.....	336-1600	1300	.....	VI	1.71-.437
52		RD-572	Own	I,M	TC	6-4⅝x5½	D	4	572	154-2000			14.5	.....	.....	.....	428-1300	1845	.....	VI	1.87-.546
53		TD-8427	Own	T,B,Tr	TC	6-4⅛x4½	N	4	427	147-2600			14.5	.....	.....	.....	336-1600	1270	.....	VI	1.71-.437
54		RD-8572	Own	T,B,Tr	TC	6-4⅝x5½	D	4	572	172-2400			14.5	.....	.....	.....	428-1300	1785	.....	VI	1.87-.546
55		SD-802	Own	I	TC	6-5⅛x5½	D	4	802	202-1800			14.7	.....	.....	.....	620-1200	.....	.....	VI	2.19-.552
56		SD-8802	Own	T,B	TC	6-5⅛x5½	D	4	802	225-2200			14.7	.....	.....	.....	620-1300	.....	.....	VI	2.19-.552
57		ED-201	Own	I	TC	4-3⅝x4½	W	4	201	45.5-2000			15	.....	.....	.....	145-1100	.....	.....	VI	1.44-.350
58		JD-382	Own	I	TC	4-4⅛x6	W	4	382	87-2000			14.5	.....	.....	.....	276-1000	.....	.....	VI	1.56-.408
59		VD-603	Own	I	TC	8-4⅝x4½	N	...	602	197-2600			15.80	.....	.....	.....	460-1700	.....	.....	VI	1.94-.567
60		VD-8603	Own	T,B	TC	8-4⅝x4½	N	4	603	200-2800			15.80	.....	.....	.....	460-1700	1698	.....	VI	1.94-.567
61		ZD-129	Own	I	TC	4-3⅛x3⅞	W	...	129	34-2000			16.25	.....	.....	.....	95-1200	.....	.....	VI	1.13-.352
62		HD-277	Own	I	TC	4-4x5½	W	...	277	79-2400			15.30	.....	.....	.....	204-1200	.....	.....	VI	1.38-.325
63		ZD-144	Own	I	TC	4-3⅛x3⅞	W	4	144	39-2000			16.30	.....	.....	.....	113-1200	.....	.....	VI	1.13-.352
64		GD-193	Own	I	TC	4-3⅞x4½	W	4	193	56-2250			.....	1850	.....	.....	154-1200	.....	.....	VI	1.28-.381
65		ED-206	Own	I	TC	4-3½x4½	W	4	206	62-2200			15.50	1850	.....	.....	154-1400	.....	.....	VI	1.44-.350
66		ED-223	Own	I	TC	4-3½x4½	W	4	223	66-2200			15.50	.....	.....	.....	167-1400	725	.....	VI	1.13-.317
67		JD-403	Own	I	TC	4-4⅝x6	W	4	403	91.5-2000			15.00	.....	.....	.....	314-1100	1335	.....	VI	1.56-.475
68	Cummins	J-80	Own	Tr,I	DI	4-4½x5	W	4	267	80-2500	68-2500	56-2200	16.30	.....	78	23.2	198-1400	1300	.....	VI	1.38-.406
69		JF-6	Own	T,B,Tr,M,I,R	DI	6-4½x5	W	4	401	110-2200	93-2200	79-2000	15.70	.....	83	20.2	305-1450	1545	1880	VI	1.38-.406
70		JN-130	Own	T,B,Tr,M,I,R	DI	6-4½x5	W	4	401	130-2500	102-2200	90-2200	14.50	.....	78	18.1	295-1800	1630	1900	VI	1.16-.406
71		HRC-4	Own	T,B,Tr,M,R,I	DI	4-5½x6	W	4	495	115-1800	97-1800	85-1800	15.50	.....	74	20.6	375-1200	1755	1920	VI	1.75-.500
72		NHC-4	Own	T,B,Tr,M,R,I	DI	4-5½x6	W	4	495	130-2000	110-2000	93-1800	15.50	.....	80	20.4	403-1200	1895	2090	VI	1.56-.420
73		NT-165	Own	T,B,Tr,M,I,R	DI	4-5½x6	W	4	495	165-2000	140-2000	117-1800	15.50	.....	104	16.0	475-1400	1875	2025	VI	1.56-.420
74		H-6	Own	T,B,Tr,M,R,I	DI	6-4⅞x6	W	4	672	160-1800	135-1800	120-1800	16.60	.....	74	19.7	512-1250	2370	2700	VI	1.75-.500
75		NH-180	Own	T,B,Tr	DI	6-4⅞x6	W	4	672	180-2100	154-2100	125-1800	15.50	.....	82	.....	504-1525	2400	.....	VI	1.56-.420
76		HR-6(3)	Own	T,B,Tr,M,R,I	DI	6-5½x6	W	4	743	175-1800	148-1800	130-1800	15.50	.....	73	18.2	550-1300	2370	2700	VI	1.75-.500
77		HRF-6	Own	T,B,Tr,R,I	DI	6-5½x6	W	4	743	190-2000	160-2000	136-1800	15.50	.....	76	17.5	580-1300	2385	.....	VI	1.75-.500
78		HRS-6	Own	T,B,Tr,M,R,I	DI	6-5½x6	W	4	743	240-1800	204-1800	180-1800	13.50	.....	100	14.5	753-1300	2610	3000	VI	1.75-.500

For abbreviations, see pages 178 and 179

For Directory of the Engine Manufacturers listed above, see Page 53

MARINE • RAILCAR • INDUSTRIAL

VALVES		PISTON				PISTON PIN		CONNECTING RODS			MAIN BEARINGS		INJECTION SYSTEM					AIR CLEANER—MAKE	FUEL FILTER—MAKE	STARTING METHOD		OVERALL DIMENSIONS			CLUTCH HOUSING (S. A. E. NUMBERS)	LINE NUMBER
Exhaust Port Diameter and Lift (In.)	Material	Length (In.)	Weight with Rings and Pin (Lb.)	No. of Compression Rings	No. of Oil Rings	Diameter and Length (In.)	Locked In—	Materials (S. A. E. No.)	Center to Center Length (In.)	Weight with Cap and Bushing (Lb.)	Number	Diameter (In.)	Make of Pump	Make of Valve	Valve Type—Open or Closed	Orifice	Pressure—Nozzle Opening (Lb. per Sq. In.)			Make	Type	Length—Fan to Flywheel (In.)	Width (In.)	Height—To Top of Air Cleaner (In.)		
1.22-.439	AA	4.13	2.75	3	2	1.00-2.75	F	1040	7.38	3.00	7	2.50	AB	AB	C	Pi	2000	Ver	Cb	DR	Ele	39 1/8	22 3/4	25 5/8 (4)		1
2.16-.687	AA	9.31	19.19	3	2	2.75-5.53	F	1035	17.75	28.51	7	4.50	AB	AB	C	Pi	1800	Uni	P-S	D-N	E-G	86 1/2	38 1/4	62 1/4 (12)	00,0	2
2.16-.687	AA	9.31	19.19	3	2	2.75-5.53	F	1035	17.75	28.51	7	4.50	AB	AB	C	Pi	1800	...	Pur	LB	E-G	88 1/2	48	63 5/8	00,0	3
2.16-.687	AA	9.31	19.19	3	2	2.75-5.53	F	1035	17.75	28.51	9	4.69	AB	AB	C	Pi	1800	Don	Pur	LN	AEG	108 1/4	47 1/8	74 1/8	00,00	4
2.16-.687	AA	9.31	19.19	3	2	2.75-5.53	F	1035	17.75	28.51	9	4.69	AB	AB	C	Pi	1800	Don	Pur	LN	AEG	112 3/4	47 1/4	74 1/8	00,0	5
2.16-.687	AA	9.31	19.19	3	2	2.75-5.53	F	1035	17.75	28.51	7	4.50	AB	AB	C	Pi	1800	Uni	P-S	D-N	E-G	86 1/2	38 1/4	62 1/4 (12)	00,0	6
2.16-.687	AA	9.31	19.19	3	2	2.75-5.53	F	1035	17.75	28.51	9	4.69	AB	AB	C	Pi	1800	Don	Pur	LN	AEG	108 1/4	47 1/8	74 1/8	00,0	7
2.16-.687	AA	9.31	19.19	3	2	2.75-5.53	F	1035	17.75	28.51	9	4.69	AB	AB	C	Pi	1800	Don	Pur	LN	AEG	112 3/4	47 1/4	74 1/8	00,0	8
1.44-.478	AA	5.73	...	3	2	1.50-3.81	F	1045	11.00	...	5	3.50	AB	AB	C	Pi	2000	Don	Com	DR	Ele	48 1/8	29 1/4	61 1/8	.....	9
1.12-.429	AA	4.12	2.38	3	2	1.00-2.84	...	1035	7.38	2.62	5	2.50	AB	AB	C	Pi	2000	Uni	Fra	AL	Ele	30 1/8	19 3/4	26 7/8	.....	10
1.22-.....	AA	4.15	2.75	3	2	1.00-2.97	F	1035	7.38	3.00	7	2.50	RM	RM	C	Pi	2000	N	Fra	DR	Ele	22 1/2	29 3/8	39 1/8	.....	11
1.22-.440	AA	4.14	...	3	2	1.00-3.09	F	1035	7.38	...	7	2.50	RM	RM	C	Pi	2175	Own	Fra	DR	Ele	55 1/8	26 1/4	30 1/8	.....	12
1.63-.544	AA	6.75	8.50	3	2	1.75-4.50	F	1041B	12.50	13.00	7	3.75	AB	AB	C	Mu	2500	Fra	Fra	DR	Ele	63 1/2	35 1/8	64 1/8	.....	13
1.63-.544	AA	6.75	8.50	3	2	1.75-4.50	F	1041B	12.50	13.00	7	3.75	AB	AB	C	Mu	2500	Fra	Fra	DR	Ele	63 1/2	35 1/8	63 1/2	.....	14
1.38-.482	Alu	6.00	4.36	3	1	1.63-3.80	F	St	10.50	7.49	7	3.50	AB	AB	C	Mu	2500	Fra	Own	DR	Ele	48 1/8	27 1/8	49 1/2	.....	15
1.38-.482	Alu	6.00	4.36	3	1	1.63-3.80	F	St	10.50	7.49	7	3.50	AB	AB	C	Mu	2500	Fra	Own	DR	Ele	48 1/8	27 1/8	.....	.....	16
1.06-.360	Alu	3.88	...	3	1	1.31-...	F	4140	.....	.....	2	TR	AB	AB	...	Pi	1900	Pur	Pur	DR	E-H	23	19 1/4	24	.....	17
1.06-.360	Alu	3.88	...	3	1	1.31-...	F	4140	.....	.....	2	TR	AB	AB	...	Pi	...	Pur	Pur	DR	E-H	23	19 1/2	26	.....	18
1.06-.360	Alu	3.88	...	3	1	1.31-...	F	4140	.....	.....	2	TR	AB	AB	...	Pi	1900	Pur	Pur	DR	E-H	30	30	28	.....	19
1.06-.360	Alu	3.88	...	3	1	1.31-...	F	4140	.....	.....	2	TR	AB	AB	...	Pi	1900	Pur	Pur	DR	E-H	30	30	30	.....	20
.....	Alu	3.00	1.06	3	2	.866-2.40	F	8612	3.92	10.00	2	1.19	R-B	R-B	C	Pi	2400	...	AC	DR	Ele	23	15	42	.....	21
.....	AA	.....	.....	3	2	.....	.....	.....	.....	.....	5	...	Sim	.....	.....	Mu	.....	.....	.....	Fo	Ele	43 1/2	24 1/2	33 1/8	.....	22
.....	AA	.....	.....	3	2	.....	.....	St	.....	.....	7	...	Sim	.....	.....	Mu	...	AC	.....	Fe	Ele	.....	.....	.....	.....	23
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7	.....	.....	.....	.....	Mu	.....	.....	.....	.....	Ele	50	22 1/4	29 3/4	.....	24
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7	.....	.....	.....	.....	Mu	.....	.....	.....	.....	Ele	49 5/8	22 1/2	20	.....	25
1.37-.424	AA	4.78	.....	2	1	1.25-3.42	F	1040	8.37	.....	5	3.00	Own	Own	C	Si	750	Don	Pur	ODS	AEG	40	29	35	2	26
1.60-.440	AA	4.78	.....	2	1	1.25-3.42	F	1040	8.37	.....	5	3.00	Own	Own	C	Si	750	Don	Pur	ODS	AEG	40	28 3/8	34 1/2	2	27
1.60-.440	AA	4.78	.....	2	1	1.25-3.42	F	1040	8.37	.....	5	3.00	Own	Own	C	Si	750	Don	Pur	ODS	AEG	40	28 3/8	34 1/2	2	28
1.75-.490	AA	5.50	.....	2	1	1.50-3.73	F	1040	9.00	.....	5	3.50	Own	Own	C	Si	750	Don	Pur	ODS	AEG	45	36	39	1	29
1.75-.490	AA	5.50	.....	2	1	1.50-3.73	F	1040	9.00	.....	5	3.50	Own	Own	C	Si	750	Don	Pur	ODS	AEG	45	36	39	1	30
1.75-.490	AA	5.50	.....	2	1	1.50-3.73	F	1040	9.00	.....	7	3.50	Own	Own	C	Si	750	Don	Pur	ODS	AEG	58	31 1/8	39 1/8	1	31
1.75-.490	AA	5.50	.....	2	1	1.50-3.73	F	1040	9.00	.....	7	3.50	Own	Own	C	Si	750	Don	Pur	ODS	AEG	58	31 1/8	39 3/8	1	32
2.00-.588	AA	8.19	.....	3	1	2.39-4.73	F	1040	15.00	.....	7	3.75	Own	Own	C	Si	750	D-P	Pur	ODS	AEG	90	42 1/8	57 1/8	0	33
2.00-.588	AA	8.19	.....	3	1	2.39-4.73	F	1040	15.00	.....	7	3.75	Own	Own	C	Si	750	D-P	Pur	ODS	AEG	89 1/2	42 1/2	57 1/2	0	34
2.13-.579	AA	8.19	.....	3	1	2.39-5.14	F	1040	15.00	.....	7	4.63	Own	Own	C	Si	750	D-P	Pur	ODS	AEG	75 1/2	45 1/2	69 1/8	0	35
2.06-.588	AA	8.19	.....	3	1	2.39-4.73	F	1040	18.00	.....	5	5.51	Own	Own	C	Si	750	Don	Com	ODS	AEG	85 1/2	52 1/2	77 1/2	00	36
2.00-.588	AA	8.19	.....	3	1	2.39-4.73	F	1040	18.00	.....	5	5.51	Own	Own	C	Si	750	Don	Com	ODS	AEG	85 1/2	52 1/2	77 1/2	00	37
2.00-.588	AA	8.19	.....	3	1	2.39-4.73	F	1040	18.00	.....	5	5.51	Own	Own	C	Si	750	D-P	Com	ODS	AEG	85 1/2	52 1/2	77 1/2	00	38
2.00-.588	AA	8.19	.....	3	1	2.39-4.73	F	1040	18.00	.....	5	5.51	Own	Own	C	Si	750	Don	Com	ODS	AEG	85 1/2	52 1/2	79	00	39
2.00-.588	AA	8.19	.....	3	1	2.39-4.73	F	1040	18.00	.....	7	5.51	Own	Own	C	Si	750	Don	Com	ODS	AEG	108	52 1/2	79 1/8	00	40
2.00-.588	AA	8.19	.....	3	1	2.39-4.73	F	1040	18.00	.....	7	5.51	Own	Own	C	Si	750	Don	Com	ODS	AEG	108	52 1/2	79 1/8	00	41
2.00-.588	AA	8.19	.....	3	1	2.39-4.73	F	1040	18.00	.....	7	5.51	Own	Own	C	Si	750	D-P	Com	ODS	AEG	108	52 1/2	79 1/8	00	42
2.00-.588	AA	8.19	.....	3	1	2.39-4.73	F	1040	18.00	.....	7	5.51	Own	Own	C	Si	750	Don	Com	ODS	AEG	108	52 1/2	79 1/8	00	43
1.75-.490	AA	5.50	.....	2	1	1.50-3.73	F	1040	9.00	.....	7	3.50	Own	Own	C	Si	750	Don	Pur	DS	AE	53	30	48	.....	44
1.44-.....	AA	6.31	.....	2	1	2.00-4.54	F	1041	11.13	.....	7	4.50	Own	Own	C	Si	750	Don	Pur	ODS	AEG	77	40	55	.....	45
.....	AA	5.50	4.1	4	2	1.63-3.25	F	1045	9.19	4.0	4	3.50	R-B	R-B	C	Pi	1760	Var	Fra	AL	Ele	31 1/2	23	34 1/2	3	46
.....	AA	5.50	4.1	4	2	1.63-3.25	F	1045	9.19	4.0	4	3.50	R-B	R-B	C	Pi	1760	Var	Fra	AL	Ele	37 1/2	33 1/8	35 1/8	2	47
1.06-.375	AA	3.75	....	3	1	1.12-...	F	1035	7.00	.....	3	2.37	Opt	.....	.....	Pi	1850	Opt	Opt	Opt	Ele	31 1/8	19 1/4	30 1/4	Opt	48
1.25-.328	AA	4.31	....	3	2	1.25-...	F	1035	9.50	.....	3	2.87	Opt	.....	.....	Pi	1850	Opt	Opt	Opt	Ele	33 5/8	21 1/2	35	Opt	49
1.25-.328	AA	4.31	....	3	2	1.25-...	F	1035	9.50	.....	3	2.87	Opt	.....	.....	Pi	1850	Opt	Opt	Opt	Ele	33 5/8	27 1/2	35	Opt	50
1.50-.437	AA	4.68	....	3	2	1.43-...	F	1035	8.37	.....	7	2.87	Opt	.....	.....	Pi	1850	Opt	Opt	Opt	Ele	47 1/8	27 1/8	37 1/8	Opt	51
1.65-.546	AA	5.93	....	3	2	1.50-...	F	1035	10.50	.....	7	3.25	Opt	.....	.....	Pi	1850	Opt	Opt	Opt	Ele	51 1/2	31 1/8	44 1/2	Opt	52
1.50-.437	AA	4.68	....	3	2	1.25-...	F	1035	8.37	.....	7	2.87	Opt	.....	.....	Pi	1850	Opt	Opt	Opt	Ele	41 1/2	15 1/8	34 1/2	Opt	53
1.65-.546	AA	5.93	....	3	2	1.50-...	F	1035	10.50	.....	7	3.25	Opt	.....	.....	Pi	1850	Opt	Opt	Opt	Ele	51 1/2	27 1/8	37 1/2	Opt	54
1.91-.552	Alu	5.88	....	3	2	1.75-4.22	F	8640	10.50	.....	7	3.75	Opt	.....	.....	Pi	1850	Opt	Opt	Opt	Ele	53 1/2	30 1/2	48 1/2	Opt	55
1.91-.522	Alu	5.88	....	3	2	1.75-4.22	F	8640	10.50	.....	7	3.75	Opt	.....	.....	Pi	1850	Opt	Opt	Opt	Ele	53 1/2	30 1/2	48 1/2	Opt	56
1.19-.350	Alu	4.06	....	3	1	1.10-3.06	F	1035	8.38	.....	3	2.62	Opt	.....	.....	Pi	1850	Opt	Opt	Opt	Ele	.....	.....	.....	Opt	57
1.38-.406	Alu	5.94	....	3	2	1.49-3.71	F	1035	10.00	.....	3	3.25	Opt	.....	.....	Pi	1850	Opt	Opt	Opt	Ele	.....	.....	.....	Opt	58
1.63-.567	Alu	5.44	6.19	3	2	1.50-3.97	F	8637	8.38	4.68	5	3.50	Opt	.....	.....	Pi	1900	Opt	Opt	Opt	Ele	.....	.....	.....	Opt	59
1.63-.567	Alu	5.44	6.19	3	2	1.50-3.97	F	8637	8.38	4.68	5	3.50	Opt	.....	.....	Pi	1900	Opt	Opt	Opt	Ele	43 1/2	34	46 1/2	Opt	60
1.00-.352	AA	3.58	....	3	1	.968-2.68	F	1035	6.38	1.75	3	2.50	.....	.....	.....	Pi	1850	Opt	Opt	Opt	Ele	27	19 3/4	32 1/4	Opt	61
1.25-.325	Alu	4.31	....	3	2	1.25-...	F	1035	9.50	.....	3	3.06	Opt	.....	.....	Pi	1850	Opt	Opt	Opt	Ele	33 1/8	21	32 1/2	.....	62
1.00-.352	.....	.....	.....	.....	.....	.....	F	.....	6.37	.....	3	2.50	Opt	.....	.....	Pi	1850	Opt	Opt	Opt	Ele	.....	.....	.....	Opt	63
1.09-.381	Alu	2.19	....	3	1	1.11-3.06	F	1041	7.00	.....	3	...	Opt	.....	.....	Pi	1850	Opt	Opt	Opt	Ele	.....	.....	.....	.....	64
1.19-.350	Alu	4.06	....	3	1	1.10-3.06	F	1035	8.38	.....	3	2.62	Opt	.....	.....	Pi	1850	Opt	Opt	Opt	Ele	.....	.....	.....	.....	65
1.00-.317	AA	4.06	....	3	2	1.11-3.06	F	1035	8.38	.....	3	2.63	Opt	.....	.....	Pi	1850	Opt	Opt	Opt	Ele	.....	.....	.....	.....	66
1.38-.475	AA	5.94	....	3	2	1.50-3.71	F	1035	10.50	.....	3	3.25	Opt	.....	.....	Pi	1850	Opt	Opt	Opt	Ele	.....	.....	.....	.....	67
1.38-.406	Alu	5.04	4.55	3	1	1.50-3.50	F	E4137H	9.50	6.75	5	3.88	Own	N	...	Mu	...	Fra	Fra	DR	Ele	35 1/2	25 1/8	41 1/2	3	68
1.38-.406	Alu	5.04	4.55	3	1	1.50-3.50	F	E4137H	9.50	6.75	7	3.88	Own	N	...	Mu	...	Fra	Fra	Opt	Ele	47 1/4	26 1/2	41 1/2	3	69
1.16-.406	Alu	5.04	4.50	3	1	1.50-3.50	F	E4137H	9.50	6.75	7	3.88	Own	N	...	Mu	...	Fra	Fra	Opt	Ele	47 1/2	26 1/2	43 1/2	2	70
1.75-.500	Alu	6.25	9.16	3	1	2.00-4.38	F	E4137H	12.00	10.60	5	4.50	Own	N	...	Mu	...	Fra	Fra	Opt	Ele	44 1/2	29 5/8	47 1/2	2	71
1.56-.420	Alu	6.25	9.13	3	1	2.00-4.38	F	E4137H	12.00	10.60	5	4.50	Own	N	...	Mu	...	Fra	Fra	Opt	Ele	42 1/2	28 1/2	47 1/2	2	72
1.56-.420	Alu	6.25	9.13	3	1	2.00-4.38	F	E4137H	12.00	10.60	5	4.50	Own	N	...	Mu	...	Fra	Fra	Opt	Ele	44 5/8	30 1/2	53 1/8	2	73
1.75-.500	CI	6.25	11.33	3	1	2.00-4.38	F	E4137H	12.00	10.60	7	4.50	Own	N	...	Mu	...	Fra	Fra	Opt	Ele	56 1/2	26 1/8	48 5/8	2	74
1.56-.500	Alu	6.25	9.13	3	1	2.00-4.38	F	E4137H	12.00	10.60	7	4.50	Own	N	...	Mu	...	Fra	Fra	Opt	Ele	59 1/2	30 5/8	48 5/8	2	75
1.75-.500	Alu	6.25	9.16	3	1	2.00-4.38	F	E4137H	12.00	10.60	7	4.50	Own	N	...	Mu	...	Fra	Fra	Opt	Ele	56 1/2	26 1/8	48 5/8	2	76
1.75-.500	Alu	6.25	9.16	3	1	2.00-4.38	F	E4137H	12.00	10.60	7	4.50	Own	N	...	Mu	...	Fra	Fra	Opt	Ele	59 1/2	26 1/8	48 1/2	2	77
1.75-.500	Alu	6.25	9.03	3	1	2.00-4.38	F	E4137H	12.00	10.60	7	4.50	Own	N	...	Mu	...	Fra	Fra	Opt	Ele	59 1/2	32	48 5/8	1	78

For abbreviations, see pages 178 and 179

For Directory of the Engine Manufacturers listed above, see Page 53

1961 DIESEL ENGINES FOR TRUCK, BUS, TRACTOR,

Line Number	ENGINE MAKE AND MODEL	Built Under License from	GENERAL: Designed for	Type	Number of Cylinders Bore and Stroke (In.)	Cylinder Liners—Type	Cycle	Piston Displacement (Cu. In.)	With Bare Engine: Maximum Brake Hp. at Specified R.P.M.	With Standard Accessories: Max. Intermittent Hp. at Specified R.P.M.	With Standard Accessories: Continuous Sustained Hp. at Specified R.P.M.	Compression Ratio—to 1	Max. Combustion Pressure (Lb. per Sq. In.)	B.M.E.P. at Continuous Hp. (Lb. per Sq. In.)	Weight per Continuous Hp. (Lb.)	Max. Torque in Lb. Ft. at Specified R.P.M.	Shipping Weight (Lb.): Automotive or Industrial	Shipping Weight (Lb.): Marine	VALVES: Arrangement	VALVES: Intake Port Diameter and Lift (In.)
	Cummins—Cont'd.																			
1	NH-220(3)	Own	T,B,Tr,R,I	DI	6-5½x6	W	4	743	220-2100	185-2100	150-1800	15.50	....	81	16.6	606-1600	2420	2950	VI	1.56-.420
2	NTO-6	Own	T,B,Tr,M,R,I	DI	6-5½x6	W	4	743	262-2100	222-2100	172-1800	15.50	....	103	14.5	695-1500	2515	3050	VI	1.56-.420
3	NHS-6	Own	T,B,Tr,M,R,I	DI	6-5½x6	W	4	743	290-2100	248-2100	192-1800	13.50	....	109	14.9	775-1500	2720	3040	VI	1.56-.420
4	NHRS-6	Own	T,B,Tr,M,R,I	DI	6-5½x6	W	4	743	320-2100	270-2100	220-1800	12.00	....	120	13.3	865-1600	2720	3055	VI	1.56-.420
5	NRT-6	Own	T,B,Tr,M,R,I	DI	6-5½x6	W	4	743	300-2100	254-2100	201-1800	14.00	....	119	12.6	810-1550	2525	3050	VI	1.56-.420
6	NRTO-6	Own	T,B,Tr,M,I,R	DI	6-5½x6	W	4	743	335-2100	286-2100	225-1800	14.00	....	133	11.5‡	900-1500	2585	3050	VI	1.56-.420
7	NVH-12	Own	Tr,M,R,I	DI	12-5½x6	W	4	1486	450-2100	382-2100	310-1800	15.50	....	82	16.6‡	1230-1500	5150	5700	VI	1.56-.420
8	VT-12	Own	Tr,M,R,I	DI	12-5½x6	W	4	1486	600-2100	510-2100	410-1800	14.00	....	106	12.9‡	1635-1500	5300	6100	VI	1.56-.420
9	LR-6	Own	M,R,I	DI	6-7½x10	W	4	2477	326-1100	326-1100	260-1000	13.50	....	74	36.0	1760-675	7590	9240	VI	2.50-.682
10	LRT-6	Own	M,I,R	DI	6-7½x10	W	4	2477	450-1100	450-1100	325-1000	13.50	....	107	23.7‡	2260-825	7890	9375	VI	2.50-.682
11	NT-180	Own	T,B	DI	4-5½x6	W	4	495	180-2100	....	....	14.00	....	....	....	495-1500	1995	....	VI	1.56-.420
12	NT-200	Own	T,B	....	4-5½x6	W	4	495	200-2100	....	....	15.50	....	....	....	540-1500	1995	....	VI	1.56-.420
13	C-90	Own	T,Tr,I	DI	4-4½x5	W	4	309	90-2000	76-2000	62-1800	15.80	....	88	21.0	246-1450	1300	....	VI	1.25-....
14	C-105	Own	T,Tr,I	DI	4-4½x5	W	4	309	105-2500	89-2500	72-2200	14.50	....	84	18.1	246-1500	1300	....	VI	1.25-....
15	C-160	Own	T,Tr,I	DI	6-4½x5	W	4	464	160-2500	127-2200	112-2200	14.50	....	87	14.5‡	376-1400	1830	1920	VI	1.25-....
16	C-175	Own	T,I	DI	6-4½x5	W	4	464	175-2500	148-2500	122-2200	14.50	....	95	13.8	407-1750	1670	1920	VI	1.25-....
17	NH-250	Own	T,B,Tr,M,I	DI	6-5½x6	W	4	855	250-2100	214-2100	174-1800	15.00	....	90	14.9‡	685-1500	2590	3000	VI	1.56-.420
18	C-140	Own	T,B,I	DI	4-4½x5	W	4	309	140-2500	118-2500	97-2200	14.50	....	113	13.8	320-1700	1335	....	VI	1.25-....
19	C-180	Own	T,B,I	DI	6-4½x5	W	4	464	180-2500	154-2500	125-2200	14.50	....	97	13.3	425-1700	1860	....	VI	1.25-....
20	NHE-180	Own	T,B	DI	6-5½x6	W	4	743	180-1950	....	....	15.60	....	....	....	534-1300	2400	....	VI	1.56-.420
21	NHE-195	Own	T,B	DI	6-5½x6	W	4	743	195-1950	....	....	15.50	....	....	....	580-1300	2420	....	VI	1.56-.420
22	NT-280	Own	T,B,I	DI	6-5½x6	W	4	855	280-2100	....	....	....	....	....	....	770-1500	2650	....	VI	1.88-....
23	NT-335	Own	T,B,I	DI	6-5½x6	W	4	855	335-2100	....	....	14.10	....	....	....	920-1500	2660	....	VI	1.88-....
24	NT-380	Own	I	DI	6-5½x6	W	4	855	380-2300	325-2300	265-2000	14.10	....	122	10.4	955-1600	2750	....	VI	1.88-....
25	V8-350	Own	T,B,I	DI	8-5½x5	W	4	950	350-2500	297-2500	245-2200	15.20	....	93	12.3	805-1700	3020	....	VI	1.88-....
26	VT8-430	Own	T,B,I	DI	8-5½x5	W	4	950	430-2500	365-2500	305-2200	14.20	....	115	9.9	1005-1750	3020	....	VI	1.88-....
27	V12-525	Own	I	DI	12-5½x6	W	4	1710	525-2100	....	....	15.10	....	....	....	....	5200	....	VI	1.88-....
28	VT12-700	Own	I	DI	12-5½x6	W	4	1710	700-2100	590-2100	380-1800	14.10	....	117	15.0	1930-1500	5700	....	VI	1.88-....
29	Deutz†† F1L-712	....	Tr,M,I	TC	1-3⅝x4½	D	....	52	13-2300	12-2200	10-2000	20.00	995	85	44.0	31-1600	448	551	VI	1.47-.240
30	F2L-712	....	Tr,M,I	TC	2-3⅝x4½	D	4	104	26-2300	24-2200	20-2000	20.00	995	85	30.9	62-1600	617	694	VI	1.47-.240
31	F3L-712	....	Cr,T,B,Tr,M,I	TC	3-3⅝x4½	D	4	156	45-2600	36-2200	30-2000	20.00	995	81	22.3	92-1800	881	815	VI	1.47-.240
32	F4L-712	....	T,B,Tr,M,I	TC	4-3⅝x4½	D	4	207	60-2600	48-2200	40-2000	20.00	995	81	17.4	123-1800	694	826	VI	1.47-.240
33	F6L-712	....	T,B,Tr,M,I	TC	6-3⅝x4½	D	4	311	90-2600	72-2200	60-2000	20.00	995	81	15.1	184-1800	903	1068	VI	1.47-.240
34	F8L-714	....	T,B,Tr,R,I	TC	8-4⅜x5½	D	4	579	160-2300	145-2300	100-1800	17.80	995	90	15.4‡	375-1200	1540	....	VI	1.76-.395
35	F8L-714	....	T,B,Tr,M,R,I	TC	8-4⅜x5½	D	....	771	220-2300	195-2300	133-1800	17.80	995	90	14.1‡	440-1200	1871	2001	VI	1.76-.395
36	F12L-714	....	T,B,Tr,M,R,I	TC	12-4⅜x5½	D	....	1157	350-2300	290-2300	200-2300	17.80	995	90	14.0‡	655-1200	2796	2994	VI	1.76-.395
37	F3L-716	....	T,Tr,M,R,I	PC	3-5⅛x6⅛	W	4	419	....	90-1800	82-1800	19.00	1000	85	17.1	275-1400	1400	....	VI	....
38	F4L-716	....	T,B,Tr,M,R,I	PC	4-5⅛x6⅛	W	4	559	....	120-1800	110-1800	19.00	1000	85	15.4	389-1400	1698	....	VI	....
39	F6L-716	....	T,B,Tr,M,R,I	PC	6-5⅛x6⅛	W	4	838	....	180-1800	165-1800	19.00	1000	85	13.8	553-1400	2262	....	VI	....
40	BF6L-716	....	T,B,Tr,M,R,I	PC	6-5⅛x6⅛	W	4	838	....	230-1800	210-1800	17.30	....	119	11.4	....	2403	....	....	....
41	F12M-716	....	T,B,Tr,M,R,I	PC	12-5⅛x6⅛	W	4	1677	....	400-2000	325-1800	19.00	1000	84	12.3	1107-1400	4012	....	VI	....
42	BF12L-716	....	T,B,Tr,M,R,I	PC	12-5⅛x6⅛	W	4	1677	....	460-1800	420-1800	17.30	....	119	10.0	....	4189	....	....	....
	Fairbanks-Morse																			
43	48C3½	....	M,I	PC	1-3½x4	W	4	30.7	....	6.5-1800	5.25-1800	16.90	850	80	.8	19-....	....	430	VI	1.25-....
44	48C4½	....	M,I	PC	1-4½x4½	W	4	60.1	....	13.2-1800	10.5-1800	16.90	850	80	6.1	30-....	....	650	VI	....
45	45C4½2	....	M,I	PC	2-4½x5¼	W	4	140	37-....	35.2-....	32-....	16.00	850	96	21.4	....	....	890	VI	1.39-....
46	49B4½	....	M,I	DI	2-4½x5½	W	2	174	91-1800	67.5-1800	56-1800	16.00	1200	73	23.3	210-800	....	1350	VI	....
47	49B4½	....	M,I	DI	3-4½x5½	W	2	262	120-1800	110-1800	90-1800	16.00	1200	78	18.9	315-800	....	1700	VI	....
48	49B4½	....	M,I	DI	2-4½x5½	W	2	350	170-1800	150-1800	127-1800	16.00	1200	78	15.7	440-800	....	2000	VI	....
49	49B4½	....	M,I	DI	6-4½x5½	W	2	825	280-1800	230-1800	180-1800	16.00	1200	78	14.2	630-800	....	2550	VI	....
50	Ford X	....	I	DI	4-3⅞x4⅜	W	4	220	60-2250	49.5-2250	....	16.00	385	96	....	151-1600	690	890	VI	1.73-.360
51	Y	....	I	DI	6-3⅞x4⅜	W	4	331	96-2250	88-2250	79-2250	16.00	300	....	11.3	236-1600	880	....	VI	1.73-.360
52	DD	....	I	DI	4-3⅞x3⅜	W	4	172	59-2400	....	47-2400	16.00	380	92	12.2	140-1600	575	....	VI	1.46-.355
53	General Motors 2-71	Own	Tr,I	DI	2-4¼x5	D	2	142	67-2000	56-2000	40-1800	17.00	1200	62	24.0	194-1400	960	....	VI	No Valves
54	3-71	Own	I,Tr,M,T	DI	3-4¼x5	D	2	213	118-2300	99-2100	72-1800	17.00	1200	75	21.2	293-1400	1525	....	VI	No Valves
55	4-71	Own	I,Tr,M,T,B	DI	4-4¼x5	D	2	284	167-2300	138-2100	98-1800	17.00	1200	76	17.9	395-1600	1750	....	VI	No Valves
56	6-71	Own	I,Tr,M	DI	6-4¼x5	D	2	426	252-2300	207-2100	147-1800	17.00	1200	76	14.9	602-1600	2190	....	VI	No Valves
57	6-110	Own	T,I,M	DI	6-5x5.6	D	2	660	309-2000	274-2000	210-1800	16.00	1250	70	15.5	915-1400	3260	....	VI	No Valves
58	Twin 4-71	Own	I	DI	8-4¼x5	D	2	568	334-2300	255-2100	1182-1800	17.00	1200	71	26.5	1230-792Sh	4820‡	....	VI	No Valves
59	Twin 6-71	Own	I,M	DI	12-4¼x5	D	2	851	504-2300	390-2100	280-1800	17.00	1200	73	20.0	1890-792Sh	5820	....	VI	No Valves
60	Twin 6-110	Own	I,M	DI	12-5x5.6	D	2	1320	618-2000	541-2000	416-1800	16.00	1250	69	27.5	2820-885Sh	11440	....	VI	No Valves
61	Quad 6-71	Own	I,M	DI	24-4¼x5	D	2	1702	1008-2300	780-2100	556-1800	17.00	1200	72	22.4	3740-800Sh	12425‡	....	VI	No Valves
62	4-71E	Own	T,B,Tr,I	DI	4-4¼x5	D	2	284	145-2100	167-2300	110-1800	17.00	1120	85	15.9	403-1200	1750	....	VI	No Valves
63	6-71E	Own	T,B,Tr,I,M	DI	6-4¼x5	D	2	426	218-2100	252-2300	163-1800	17.00	1120	85	13.2‡	604-1200	2150	2740	VI	No Valves
64	2-53	Own	Tr,I	DI	2-3⅞x4½	W	2	106	47-2000	42-2000	33-1800	17.00	1135	68	23.3	131-1200	770	....	VI	No Valves
65	3-53	Own	T,Tr,M,I	DI	3-3⅞x4½	W	2	159	97-2800	81-2500	58-2200	17.00	1135	66	16.2‡	200-1500	940	1050	VI	No Valves
66	4-53	Own	T,B,Tr,M,I	DI	4-3⅞x4½	W	2	212	130-2800	112-2500	82-2200	17.00	1135	69	13.5‡	271-1500	1110	1200	VI	No Valves
67	6V-53	Own	T,B,Tr,I,M	DI	6-3⅞x4½	W	2	318	195-2800	171-2500	125-2200	17.00	1135	71	11.2	423-1500	1400	....	VI	No Valves
68	6V-71	Own	T,B,Tr,M,I	DI	6-4¼x5	D	2	426	252-2300	198-2100	162-1800	17.00	1235	84	12.4‡	804-1200	2010	2510	VI	No Valves
69	8V-71	Own	T,B,Tr,M,I	DI	8-4¼x5	D	2	568	336-2300	263-2100	215-1800	17.00	1235	84	11.8‡	805-1200	2505	3130	VI	No Valves
70	12V-71	Own	T,Tr,I	DI	12-4¼x5	D	2	851	504-2300	396-2100	324-1800	17.00	1235	84	9.5‡	1205-1200	3205	4600	VI	No Valves
71	16V-71	Own	Tr,M,I	DI	16-4¼x5	D	2	1135	675-2300	528-2100	432-1800	17.00	1235	84	21.0	1602-1200	....	7000	VI	No Valves
72	Gray Marine-Four-D129	Cont	M	TC	4-3½x3⅞	W	4	129	....	25-2000	20-1800	18.25	....	68	35.0	87-1200	....	700	VI	1.25-.352
73	Four-D157	....	M	TC	4-3⅝x4⅜	W	4	157	....	30-1800	24-1600	15.00	....	75	45.8	108-1800	....	1100	VI	1.18-.273
74	Four-D277	Cont	M	TC	4-4x5½	W	4	277	....	66-2200	50-2000	16.10	....	71	28.8	171-2000	....	1440	VI	1.37-.248
75	Six-D427	Lanova	M	TC	6-4⅛x4¼	N	4	427	....	130-2400	110-2200	14.40	....	82	13.4	250-2200	....	1475	VI	1.72-.440
76	Six-D672	....	M	TC	6-4⅝x5¼	N	4	572	....	150-2400	135-2200	15.00	....	78	18.8	401-1600	....	2510	VI	1.87-.546
77	Six-D802	Lanova	M	TC	6-5⅛x5½	D	4	802	....	190-2200	157-2000	15.00	....	77	17.2	455-2200	....	2700	VI	1.94-.391
78	Hercules DD-149-H	....	Tr,M,I	DI	3-3⅝x4½	D	4	149	48-2600	39-2600	33-1800	16.20	750	95	17.1	114-1400	550	....	VI	1.44-.369
79	DD-169-H	....	Tr,M,I	DI	3-4x4½	D	4	169	52-2600	44.5-2600	37-1800	16.20	750	96	14.9	130-1400	550	....	VI	1.44-.369
80	DD-198-H	....	Tr,M,R,I	DI	4-3⅝x4½	D	4	198	72-2600	61-2600	45-1800	16.20	750	100	13.3	156-1500	600	....	VI	1.44-.369

For abbreviations, see pages 178 and 179

For Directory of the Engine Manufacturers listed above, see Page 53

MARINE, RAILCAR, OR INDUSTRIAL USE—*continued*

VALVES		PISTON					PISTON PIN		CONNECTING RODS			MAIN BEARINGS		INJECTION SYSTEM								STARTING METHOD		OVERALL DIMENSIONS				
Exhaust Port Diameter and Lift (In.)	Material	Length (In.)	Weight with Rings and Pin (Lb.)	No. of Compression Rings	No. of Oil Rings	Diameter and Length (In.)	Locked In—	Materials (S. A. E. No.)	Center to Center Length (In.)	Weight with Cap and Bushing (Lb.)	Number	Diameter (In.)	Make of Pump	Make of Valve	Valve Type—Open or Closed	Orifice	Pressure—Nozzle Opening (Lb. per Sq. In.)	Air Cleaner—Make	Fuel Filter—Make	Make	Type	Length—Fan to Flywheel (In.)	Width (In.)	Height—To Top of Air Cleaner (In.)	Clutch Housing (S. A. E. Numbers)	Line Number
1.56– .420	Alu	6.25	9.13	3	1	2.00–4.38	F	E4137H	12.00	10.60	7	4.50	Own	N		Mu		Fra	Fra	Opt	Ele	60 1/16	28 1/16	48 3/16	1	1
1.56– .420	Alu	6.25	9.13	3	1	2.00–4.38	F	E4137H	12.00	10.60	7	4.50	Own	N		Mu		Fra	Fra	Opt	Ele	61 1/16	35 3/16	48 3/16	1	2
1.56– .420	Alu	6.25	8.93	3	1	2.00–4.38	F	E4137H	12.00	10.60	7	4.50	Own	N		Mu		Fra	Fra	Opt	Ele	59 1/16	30 1/16	48 3/16	1	3
1.56– .420	Alu	6.00	8.83	3	1	2.00–4.38	F	E4137H	12.00	10.60	7	4.50	Own	N		Mu		Fra	Fra	Opt	Ele	59 1/16	30 1/16	48 3/16	1	4
1.56– .420	Alu	6.25	8.93	3	1	2.00–4.38	F	E4137H	12.00	10.60	7	4.50	Own	N		Mu		Fra	Fra	Opt	Ele	60 1/16	35 1/16	48 3/16	1	5
1.56– .420	Alu	6.25	8.93	3	1	2.00–4.38	F	E1437H	12.00	10.60	7	4.50	Own	N		Mu		Fra	Fra	Opt	Ele	60 1/16	35 1/16	48 3/16	1	6
1.56– .420	Alu	6.25	9.13	3	1	2.00–4.38	F	E1437H	12.00	12.50	7	5.00	Own	N		Mu		Vor	Fra	Opt	Ele	70 1/16	49 5/16	53 1/16	0	7
1.56– .420	Alu	6.25	8.93	3	1	2.00–4.38	F	E1437H	12.00	12.50	7	5.00	Own	N		Mu		Vor	Fra	Opt	Ele	73 5/16	44 1/16	60 1/16	0	8
2.50– .682	Alu	10.37	29.10	3	2	2.88–5.97	F	C1040	18.00	30.00	7	5.50	Own	N		Mu		Vor	Fra		A	99 1/16	39 1/16	58 3/16	0	9
2.50– .682	Alu	10.4	29.10	3	2	2.88–5.97	F	C1040	18.00	30.00	7	5.50	Own	N		Mu		Vor	Fra		A	99 1/16	39 1/16	58 3/16	0	10
1.56– .420	Alu	6.25	9.13	3	1	2.00–4.38	F	E4137H	12.00	10.60	5	4.50	Own	N		Mu		Fra	Fra	Opt	Ele	44 5/16	35 1/16	46 7/16	1	11
1.56– .420	Alu	6.25	9.13	3	1	2.00–4.38	F	E4137H	12.00	10.60	5	4.50	Own	N		Mu		Fra	Fra	Opt	Ele	44 5/16	35 1/16	46 7/16	1	12
	Alu	5.04		3	1	1.50–	F		9.50	6.75	5	3.88	Own	N		Mu		Fra	Fra	Opt	Ele	35 1/16	25 1/16	41 1/16	3	13
	Alu	5.04		3	1	1.50–	F		9.50	6.75	5	3.88	Own	N		Mu		Fra	Fra	Opt	Ele	35 1/16	25 1/16	41 1/16	3	14
	Alu	5.04		3	1	1.50–	F		9.50	6.75	7	3.88	Own	N		Mu		Fra	Fra	Opt	Ele	45 1/16	25 1/16	43 5/16	2	15
	Alu	5.04		3	1	1.50–	F	E4137H	9.50	6.75	7	3.88	Own	N		Mu		Fra	Fra	Opt	Ele	45 1/16	28 1/16	43 1/16	2	16
1.56– .420	Alu	6.25	9.13	3	1	2.00–4.38	F	E4137H	12.00	10.60	7	4.50	Own	N		Mu		Fra	Fra	Opt	Ele	60 1/16	28	47 1/16	1	17
1.25–	Alu			3	1	1.50–	F		9.50	3.88	5	3.88	Own	N		Mu		Fra	Fra	Opt	Ele	35 1/16	25 1/16	43 1/16		18
1.25–	Alu			3	1	1.50–	F		9.50		7	3.88	Own	N		Mu		Fra	Fra	Opt	Ele	46 1/16	27 1/16	42 1/16		19
1.56– .420	Alu	6.25	9.13	3	1	2.00–4.38	F	E4137H	12.00	10.60	7	4.50	Own	N		Mu		Fra	Fra	Opt	Ele	60 1/16	28 1/16	48 3/16		20
1.56– .420	Alu	6.25	9.13	3	1	2.00–4.38	F	E4137H	12.00	10.60	7	4.50	Own	N		Mu		Fra	Fra	Opt	Ele	60 1/16	28 1/16	48 3/16		21
1.88–	Alu			3	1	3.00–	F		12.00		7	4.50	Own	N		Mu		Fra	Fra	Opt	Ele	60 1/16	38	48 3/16		22
1.88–	Alu			3	1	2.00–	F		12.00		7	4.50	Own	N		Mu		Fra	Fra	Opt	Ele	58 1/16	39 1/16	45 5/16		23
1.88–	Alu			3	1	2.00–	F		12.00		7	4.50	Own	N		Mu				Opt	Ele	58 1/16	39 1/16	45 5/16		24
1.88–	Alu			3	1	2.00–4.71	F		10.00	9.43	5	4.56	Own	N		Mu		Fra	Fra	Opt	Ele	56 1/16	45 1/16	46 1/16		25
1.88–	Alu			3	1	2.00–4.71	F		10.00	9.43	5	4.56	Own	N		Mu		Fra	Fra	Opt	Ele	56 1/16	40 1/16	46 1/16		26
1.88–	Alu			3	1	2.00–	F		12.00		7	5.00	Own	N		Mu		Fra	Fra	Opt	Ele	73 5/16	49 1/16	55 5/16		27
1.88–	Alu			3	1	2.00–	F		12.00		7	5.00	Own	N		Mu		Fra	Fra	Opt	Ele	73 5/16	44 1/16	60 1/16		28
1.34– .240	AA	4.50	3.04	3	2		F	ST5132	8.88	4.30	2	2.75	Bur	Own	C	Pi	1777	MH	AB	AB	E-H	19 1/16	22 7/16	30 1/16	3,4,5,6	29
1.34– .240	AA	4.50	3.04	3	2		F	ST5132	8.88	4.30	3	2.75	Bur	Own	C	Pi	1777	MH	AB	AB	E-H	24 5/16	24 5/16	30 1/16	3,4,5,6	30
1.34– .240	AA	4.50	3.04	3	2		F	ST5132	8.88	4.30	4	2.75	BB	Own	C	Pi	1777	MH	AB	AB	Ele	30 1/16	27	33 1/16	3,4	31
1.34– .240	AA	4.50	3.04	3	2		F	ST5132	8.88	4.30	5	2.75	R-B	Own	C	Pi	1777	MH	AB	AB	Ele	36 1/16	27	33 1/16	3,4	32
1.34– .240	AA	4.50	3.04	3	2		F	ST5132	8.88	4.30	7	2.75	R-B	Own	C	Pi	1777	MH	AB	AB	Ele	48 5/16	27	33 1/16	3,4	33
1.64– .395	AA	6.06	5.48	3	2	1.58–	F	ST5132	10.88	7.01	4	3.50	R-B	R-B	C	Pi	1777	MH	R-B	R-B	AE	40 1/16	47 1/16	38 1/16	1	34
1.64– .395	AA	6.06	5.48	3	2	1.58–	F	ST5132	10.88	7.01	5	3.50	R-B	R-B	C	Pi	1777	MH	R-B	R-B	AE	47 1/16	47 1/16	38 1/16	1	35
1.64– .395	AA	6.06	5.48	3	2	1.58–	F	ST5132	10.88	7.01	7	3.50	R-B	R-B	C	Pi	1777	MH	R-B	R-B	AE	65 1/16	47 1/16	35	1	36
											4		R-B	R-B		Pi	1875	MDF	R-B	R-F	AE	36	27	41		37
											5		R-B	R-B		Pi	1875	MDF	R-B	R-F	AE	46	27	46		38
											7		R-B	R-B		Pi	1875	MDF	R-B	R-F	AE	57	25	46		39
											7		R-B	R-B		Pi	1875	MDF	R-B	R-F		65	25	46		40
											7		R-B	R-B		Pi	1875	MDF	R-B	R-F	AE	77	53	39		41
											7		R-B	R-B		Pi	1875	MDF	R-B	R-F		86	54	50		42
1.00–	Alu			3	1		F				2	2.00	Dem	Dem	C	Pi	1750	AC	AC	AL	E-H	18		21 1/16		43
	Alu			3	1		F				2	2.50	Dem	Dem	C	Pi	1750	AC	AC	AL	E-H	30		34		44
	Alu			3	2		F						B-D	B-D	C	Pi	2000	AC	AC	AL	A-El					45
2.30– .520	Alu	6.36	6.75	3	2	1.75–3.85	F	1141	11.87	8.25	3	4.00	RM	AB	C	Si	2200	Don	Com	AL	A-El	32 1/16	28 1/16	40 7/16	1	46
2.30– .520	Alu	6.36	6.75	3	2	1.75–3.85	F	1141	11.87	8.25	4	4.00	RM	AB	C	Si	2200	Don	Com	AL	A-El	38 7/16	28 1/16	40 7/16	1	47
2.30– .520	Alu	6.36	6.75	3	2	1.75–3.85	F	1141	11.87	8.25	5	4.00	RM	AB	C	Si	2200	Don	Com	AL	A-El	45 1/16	28 1/16	40 7/16	1	48
2.30– .520	Alu	6.36	6.75	3	2	1.75–3.85	F	1141	11.87	8.25	7	4.00	RM	AB	C	Si	2200	Don	Com	AL	A-El	59 1/16	28 1/16	40 7/16	1	49
1.54– .360	AA	4.63		3	2	1.25–3.39			8.00		5	3.00	Sim			Mu		AC	P-A	Luc	Ele	31 1/16	23 1/16	34 1/16		50
1.54– .360	AA	4.63		3	2	1.25–3.39			8.00		7	3.00	Sim			Mu	2725				Ele	40 1/16	23 1/16	34 1/16		51
1.26– .337	AA			3	2	1.25–3.23	F		6.27		3	2.50	RM			Mu	2750	Pur	Har	Fra	Ele	31 1/16	18 5/16	27 1/16		52
1.58– .375	AT	6.00	7.96	4	2	1.50–3.62	F	1141A	10.12	6.14	3	3.50	Own	Own	C	Mu	450	A-D	AC	DR	Ele	31 1/16	28 1/16	40 1/16	2	53
1.58– .394	AT	6.00	7.96	4	2	1.50–3.62	F	1141A	10.12	6.14	4	3.50	Own	Own	C	Mu	450	Don	AC	DR	Ele	37 1/16	29 1/16	40 1/16	3,2,1	54
1.58– .394	AT	6.00	7.96	4	2	1.50–3.62	F	1141A	10.12	6.14	5	3.50	Own	Own	C	Mu	450	Don	AC	DR	Ele	42 7/16	29 1/16	41 1/16	3,2,1	55
1.58– .394	AT	6.00	7.96	4	2	1.50–3.62	F	1141A	10.12	6.14	7	3.50	Own	Own	C	Mu	450	Don	AC	DR	Ele	54 1/16	29 1/16	43 1/16	2,1	56
1.93– .454	AT	6.50	12.36	4	2	1.63–4.33	F	1141A	10.60	7.50	7	4.00	Own	Own	C	Mu	450	Don	AC	DR	Ele	62 5/16	37 1/16	49 1/16	1/2	57
1.58– .394	AT	6.00	7.96	4	2	1.50–3.62	F	1141A	10.12	6.14	10	3.50	Own	Own	C	Mu	450	Don	AC	DR	Ele	83	56	57 1/16		58
1.58– .394	AT	6.00	7.96	4	2	1.50–3.62	F	1141A	10.12	6.14	14	3.50	Own	Own	C	Mu	450	Don	AC	DR	Ele	94 1/16	56	57 1/16		59
1.93– .454	AT	6.50	12.36	4	2	1.63–4.33	F	1141A	10.60	7.50	14	4.00	Own	Own	C	Mu	450	Don	AC	DR	Ele	117 1/16	66	78 1/16		60
1.58– .394	AT	6.00	7.96	4	2	1.50–3.62	F	1141A	10.12	6.14	28	3.50	Own	Own	C	Mu	450	Don	AC	DR	Ele	181 5/16	57 1/16	68 5/16		61
1.20– .394	AT	6.00	7.96	4	2	1.50–3.62	F	1141A	10.12	6.14	5	3.50	Own	Own	C	Mu	450	Don	AC	DR	Ele	43 1/16	36 1/16	39 1/16	2,1	62
1.20– .394	AT	6.00	7.96	4	2	1.50–3.62	F	1141A	10.12	6.14	7	3.50	Own	Own	C	Mu	450	Don	AC	DR	Ele	54 1/16	35 1/16	49 1/16	1	63
1.40– .327	AT	5.42	6.00	4	2	1.38–3.24	F	1141	8.80	3.88	3	3.00	Own	Own	C	Mu	450	A-D	AC	DR	Ele	27 1/16	25 1/16	35 1/16	2,3,4	64
1.40– .327	AT	5.42	6.00	4	2	1.38–3.24	F	1141	8.80	3.88	4	3.00	Own	Own	C	Mu	450	A-D	AC	DR	Ele	33 1/16	25 1/16	35 1/16	2,3,4	65
1.40– .327	AT	5.42	6.00	4	2	1.38–3.24	F	1141	8.80	3.88	5	3.00	Own	Own	C	Mu	450	A-D	AC	DR	Ele	38 1/16	25 1/16	34 1/16	2,3,4	66
1.09– .327	AT	5.42	6.00	4	2	1.38–3.24	F	1141	8.80	3.66	4	3.50	Own	Own	C	Mu	450	A-D	AC	DR	Ele	39 1/16	40 1/16	35 1/16	3,2,1	67
1.20– .394	AT	6.00	7.96	4	2	1.50–3.62	F	1141	10.12	5.00	4	4.50	Own	Own	C	Mu	450	Don	AC	DR	Ele	41 1/16	38 1/16	47 1/16	1,2	68
1.20– .394	AT	6.00	7.96	4	2	1.50–3.62	F	1141	10.12	5.00	5	4.50	Own	Own	C	Mu	450	Don	AC	DR	Ele	47 1/16	39	47 1/16	0,1,2	69
1.20– .39.	AT	6.00	7.96	4	2	1.50–3.62	F	1141	10.12	5.00	7	4.50	Own	Own	C	Mu	450	Don	AC	DR	Ele	60	45 7/16	55 1/16	0,1	70
1.20– .394	AT	6.00	7.96	4	2	1.50–3.62	F	1141	10.12	5.00	10	4.50	Own	Own	C	Mu	450	Don	AC	DR	Ele				0,1	71
1.00– .352	Alu	3.58		3	1	.968–2.68	F	1035	6.38		3	2.50	RM			Pi	1850	N	Fra	DR	Ele	44 1/16	24 1/16	28 1/16		72
1.09– .273	AA	3.75		3	2	1.12–2.75	F	1035	7.00		3	2.47	RM	AB		Pi	1800	Own	ACB	AL	Ele	50	20 1/16	30 1/16	3	73
1.25– .248	AA	4.31	4.00	3	2	1.25–3.31	F	1035	9.50		3	2.88	RM	AB		Pi	1850	N	Fra	AL	Ele	56	26 5/16	39 1/16	3	74
1.50– .440	Alu	4.68		3	2	1.43–3.62	F		8.37		7	2.87	RM	AB		Pi	1800	Own	Pur	DR	Ele	67	28	27	3	75
1.66– .546	AA	6.00		3	2	1.50–4.00	F	1035	10.50	4.72	5	3.37	RM	AB		Pi	1800	Own	Fra	DR	Ele	72	26	40 5/16	1	76
1.64– .391	AA	5.87		4	1	1.75–4.22	F	1035	10.50		7	3.25	RM	AB		Pi	1800	Own	Fra	DR	Ele	56 1/16	31 1/16	43 1/16		77
1.25– .369	AA	5.00	3.35	3	2	1.13–3.03	F	3140	8.00	3.18	4	2.88	B-R	AB	C	Mu	3000	Opt	Opt	LDA	Ele	26 1/16	22 1/16	32 1/16		78
1.25– .369	AA	5.00	3.70	3	2	1.18–3.34	F	3140	8.00	3.18	4	2.88	B-R	AB	C	Mu	3000	Opt	Opt	LDA	Ele	26 1/16	22 1/16	32 1/16		79
1.25– .369	AA	5.00	3.35	3	2	1.13–3.03	F	3140	8.00	3.18	5	2.88	A-R	AB	C	Mu	3000			LDA	Ele	31 1/16	22 1/16	33		80

For abbreviations, see pages 178 and 179

For Directory of the Engine Manufacturers listed above, see Page 53

1961 DIESEL ENGINES FOR TRUCK, BUS, TRACTOR,

Line Number	ENGINE MAKE AND MODEL	Built Under License from	GENERAL																VALVES	
			Designed for	Type	Number of Cylinders Bore and Stroke (in.)	Cylinder Liners—Type	Cycle	Piston Displacement (Cu. in.)	With Bare Engine: Maximum Brake Hp. at Specified R.P.M.	With Standard Accessories: Max. Intermittent Hp. at Specified R.P.M.	With Standard Accessories: Continuous Sustained Hp. at Specified R.P.M.	Compression Ratio—to 1	Max. Combustion Pressure (Lb. per Sq. In.)	B.M.E.P. at Continuous Hp. (Lb. per Sq. In.)	Weight per Continuous Hp (Lb.)	Max. Torque in Lb. Ft. at Specified R.P.M.	Shipping Weight (Lb.): Automotive or Industrial	Shipping Weight (Lb.): Marine	Arrangement	Intake Port Diameter and Lift (in.)
	Hercules—Cont'd																			
1	DD-226-H		Tr,M,R,I	DI	4-4x4½	N	4	226	78-2600	66.5-2600	52-1800	16.20	750	101	11.5	178-1500	600		VI	1.44- .369
2	D-298-H		Tr,M,R,I	DI	6-3¾x4½	D	4	298	112-2800	95-2800	68-1800	16.20	750	101	11.0	240-1600	750		VI	1.44- .369
3	D-298-HT	Own	T,B,M,R,I	DI	6-3¾x4½	D		298	140-2800		85-1800	16.20			9.3	326-1500	765		VI	1.44- .369
4	D-339-H		Tr,I	DI	6-4x4½	N	4	339	120-2800	102-2800	79-1800	16.20	750	101	9.6	270-1500	750		VI	1.44- .369
5	D-426	H-S	T,B,Tr,M,R,I	TC	6-4½x5	D	4	426	145-2600	123-2600	95-1800	18.75		98	14.2	320-1800	1350		VI	1.68- .395
6	D-426-T	H-S	T,B,R,I	TC	6-4½x5	D	4	426	180-2600	153-2600	120-1300	18.75		124	8.6	406-1900	1400		VI	1.68- .395
7	International UD-236	Own	Tr,I	PC	6-3⅛x3½	D	4	236	75-2400	65-2400	55-2400	17.60		77	16.5	174-1800	905		VI	1.52- .406
8	UD-282	Own	Tr,I	PC	6-3⅛x4½	D	4	282	95-2400	85-2400	71-2400	18.30		83	12.7	218-1800	905		VI	1.52- .406
9	UD-370	Own	Tr,I	PC	4-4⅝x5½	D	4	370	105-2200	86-2200	67-1800	16.50		80	23.8	262-1400	1600		VI	1.66- .500
10	UD-14A	Own	Tr,I	PC	4-4⅝x6½	W	4	461	105-1800	95-1650	77-1650	15.00	1000	80	28.4	368-1200	2171		VI	1.78- .532
11	UD-554	Own	I	PC	6-4⅝x5½	D	4	554	150-2300	127-2300	101-1800	16.00		80	21.7	400-1300	2190		VI	1.66- .532
12	UD-691	Own	Tr,I	PC	6-4⅝x6½	W	4	691	150-1600	135-1600	114-1600	15.50	950	81	28.3	543-1200	3211		VI	1.78- .532
13	UD-817	Own	I,T	DI	6-5⅜x6	W	4	817	250-2100	227-2100	187-2100	16.50	1400	86	17.6	638-1600	3300		VI	1.53- .484
14	UDT-817		I,T	DI	6-5⅜x6	W	4	817	385-2100	362-2100	287-2100	16.10	2000	132	12.2	1090-1300	3500		VI	1.53- .484
15	UD-1091	Own	Tr,I	PC	6-5⅜x7	D	4	1091	224-1500	202-1500	162-1500	15.00	1050	78	25.2	825-1150	4095		VI	2.31 .625
16	UDT-1091		Tr,I	PC	6-5⅜x7	D	4	1091	300-1500	250-1500	200-1500	15.00	1250	97	20.9	1000-1250	4180		VI	2.31- .625
17	Lehman 220		M	DI	4-3⅛x4½	W	4	220	60-2250	47-2250	37-1600	16.00	365	83	22.6	152-1550		837	VI	1.73- .360
18	330		M	DI	6-3⅛x4½	W	4	330	86-2250	78-2250	61-1700	16.00	300	93	17.4	238-1500		1057	VI	1.73- .360
19	Mack END673		T,B	AS	6-4⅞x6	D	4	672	170-2100	159.4-2100†		16.59	1250			480-1200	1927		VI	2.05- .563
20	ENDT673		T,B	AS	6-4⅞x6	D	4	672	205-2100	190-2100		16.59	1575	125		560-1400	1930		VI	2.05- .563
21	Minneapolis-Moline D206	Own	Tr,	EC	4-3⅝x5	N	4	206	50-1750	45-1750		14.90		99		165-1100			VI	1.25- .469
22	D336	Own	Tr	EC	6-4⅝x5	N	4	336	67-1450	60-1450		14.90		101		250-1100			VI	1.50- .494
23	D428	Own	Tr,I	EC	6-4¼x5	N	4	425	89-1500	80-1500		14.90		102		325-1100	2190		VI	1.50- .494
24	Murphy ME-4	Own	I	DI	4-5¾x6½	W	4	675	125-1200	115-1200	110-1200	16.00		107	44.8	475- 950	+4300		V4	1.62- .500
25	MP-11	Own	I	DI	4-5¾x6½	W	4	675	130-1200	121-1200	117-1200	16.0		104	40.3	530- 800	+4300		V4	1.62- .500
26	MP-111*	Own	I	DI	4-5¾x6½	W	4	675	145-1200	135-1200	130-1200	16.0		127	35.4	560-1050	+4350		V4	1.62- .500
27	MP-12	Own	I	DI	4-6x6½	W	4	735	140-1200	130-1200	125-1200	16.00		111	36.8	600- 750	+4300		V4	1.62- .500
28	MP-112*	Own	I	DI	4-6x6½	W	4	735	165-1200	152-1200	145-1200	16.0		129	32.7	640- 950	+4350		V4	1.62- .500
29	MP-20	Own	I	DI	6-5½x6½	W	4	927	170-1200	160-1200	152-1200	16.0		108	36.1	710- 600	+5200		V4	1.37- .500
30	MP-20G^		I		6-5½x6½	W		927		160-1200	152-1200			108	36.1	700- 600	+5200		V4	
31	MP-120*	Own	I	DI	6-5½x6½	W	4	927	180-1200	170-1200	160-1200	16.0		104	34.2	740- 600	+5300		V4	1.37- .500
32	MP-21	Own	I	DI	6-5¾x6½	W	4	1013	192-1200	177-1200	167-1200	16.00		108	32.3	825- 600	+5200		V4	1.62- .500
33	MP-21G^		I		6-5¾x6½	W		1013		176-1200	167-1200			108	32.3	805- 600	+5200		V4	
34	MP-312*	Own	I	DI	6-5¾x6½	W	4	1013	222-1200	207-1200	192-1200	16.00		124	29.3	860- 850	+5300		V4	1.62- .500
35	MP-22	Own	I	DI	6-6x6½	W	4	1103	207-1200	192-1200	183-1200	16.00		110	29.4	920- 600	+5200		V4	1.62- .500
36	MP-122*	Own	I	DI	6-6x6½	W	4	1103	237-1200	222-1200	212-1200	16.00		126	36.1	920- 900	+5300		V4	1.62- .500
37	MP-211	Own	I	DI	4-5¾x6½	W	4	675	140-1400	130-1400	125-1400	16.00		105	36.4	510-1000	+4300		V4	1.62- .500
38	MP-311*	Own	I	DI	4-5¾x6½	W	4	675	155-1400	145-1400	140-1400	16.00		108	32.7	565-1000	+4350		V4	1.62- .500
39	MP-212	Own	I	DI	4-6x6½	W	4	735	150-1400	140-1400	135-1400	16.00		101	33.6	567-1000	+4300		V4	1.62- .500
40	MP-312*	Own	I	DI	4-6x6½	W	4	735	165-1400	155-1400	150-1400	16.00		114	30.2	635-1000	+4350		V4	1.62- .500
41	MP-220	Own	I	DI	6-5½x6½	W	4	927	185-1400	175-1400	165-1400	16.00		101	33.2	685-1000	+5200		V4	1.37- .500
42	MP-320*	Own	I	DI	6-5½x6½	W	4	927	200-1400	185-1400	175-1400	16.00		107	31.2	720-1000	+5300		V4	1.37- .500
43	MP-221	Own	I	DI	6-5¾x6½	W	4	1013	212-1400	197-1400	187-1400	16.00		104	30.1	760-1000	+5200		V4	1.62- .500
44	MP-321*	Own	I	DI	6-5¾x6½	W	4	1013	232-1400	217-1400	207-1400	16.00		105	26.9	850-1000	+5300		V4	1.62- .500
45	MP-222	Own	I	DI	6-6x6½	W	4	1103	232-1400	217-1400	202-1400	16.00		103	27.4	835-1000	+5200		V4	1.62- .500
46	MP 322*	Own	I	DI	6-6x6½	W	4	1103	253-1400	237-1400	227-1400	16.00		116	24.1	945-1000	+5300		V4	1.62- .500
47	MP-22G^		I		6-6x6½	W		1103		192-1200	183-1200			111	26.6	760-1200	+1700		V4	
48	MP-24		I		6-6½x6½	W		1245	232-1200	217-1200	207-1200			110	23.7	860-1200	+1700		V4	
49	MP-124*		I		6-6½x6½	W		1245	262-1200	247-1200	232-1200			123	21.3	970-1200	+1800		V4	
50	MP-220G^		I		6-5½x6½	W		927		174-1400	164-1400			100	29.9	570-1400	+4700		V4	
51	MP-222G^		I		6-6x6½	W		1103		217-1400	202-1400			103	24.8	700-1400	+4700		V4	
52	MP-224		I		6-6½x6½	W		1245	257-1400	242-1400	227-1400			103	21.9	790-1400	+4700		V4	
53	MP-324*		I		6-6½x6½	W		1245	282-1400	262-1400	252-1400			115	19.9	890-1400	+4800		V4	
54	MP-24G^		I		6-6½x6½	W		1245		217-1200	207-1200			106	23.7	1010- 600	4700		V4	
55	MP-224G^		I		6-6½x6½	W		1245		242-1400	227-1400			103	21.9	910-1000	4700		V4	
56	MP-AAB*	Own	M	DI	4-6x6½	W	4	735	185-1225	147-1225	140-1225	16.00		123	50.9	640- 950		6825	V4	1.62- .500
57	MP-BA	Own	M	DI	6-5¾x6½	W	4	1013	215-1225	172-1225	162-1225	16.00		103	49.1	825- 600		8000	V4	1.62- .500
58	MP-BB	Own	M	DI	6-6x6½	W	4	1103	245-1225	187-1225	178-1225	16.00		104	44.7	920- 600		8000	V4	1.62- .500
59	MP-ABA*	Own	M	DI	6-5¾x6½	W	4	1013	240-1225	202-1225	187-1225	16.00		119	44.9	860- 850		8265	V4	1.62- .500
60	MP-BD		M		6-6½x6½	W		1245	275-1225	212-1225	202-1225			105		860-1200			V4	
61	MP-ABB*	Own	M	DI	6-6x6½	W	4	1103	270-1225	217-1225	207-1225	16.00		121	40.3	950- 900		8265	V4	1.62- .500
62	MP-ABD*		M		6-6½x6½	W		1245	309-1225	242-1225	227-1225			118		970-1200			V4	
63	MP-BBA	Own	M	DI	6-5¾x6½	W	4	1013	230-1400	192-1400	182-1400	16.00		100	45.6	760-1000		8000	V4	1.62- .500
64	MP-BBB	Own	M	DI	6-6x6½	W	4	1103	265-1400	212-1400	197-1400	16.00		101	41.6	835-1000		8000	V4	1.62- .500
65	MP-CRA*	Own	M	DI	6-5¾x6½	W	4	1013	255-1400	212-1400	202-1400	16.00		112	41.5	850-1000		8265	V4	1.62- .500
66	MP-CBB*	Own	M	DI	6-6x6½	W	4	1103	290-1400	232-1400	222-1400	16.00		105	37.2	945-1000		8265	V4	1.62- .500
67	MP-CBD*		M		6-6½x6½	W		1245	315-1400	257-1400	247-1400			113		890-1400			V4	
68	MP-BBD		M		6-6½x6½			1245	295-1400	237-1400	222-1400			101						
69	ME-90	Own	M	DI	4-5¾x6½	W	4	675	145-1225	110-1225	105-1225	16.00		100	63.3	475- 950		△6650	V4	1.62- .500
70	MP-AA	Own	M	DI	4-5¾x6½	W	4	675	150-1225	116-1225	112-1225	16.00		106	59.4	530- 800		△6650	V4	1.62- .500
71	MP-AB	Own	M	DI	4-6x6½	W	4	735	160-1225	125-1225	120-1225	16.00		106	55.5	600- 750		△6650	V4	1.62- .500
72	MP-AAA*	Own	M	DI	4-5¾x6½	W	4	675	165-1225	130-1225	125-1225	16.00		119	54.7	560-1050		△6825	V4	1.62- .500
73	MP-BJ	Own	M	DI	6-5½x6½	W	4	927	195-1225	155-1225	147-1225	16.00		98	58.6	710- 600		△8600	V4	1.37- .500
74	MP-ABJ*	Own	M	DI	6-5½x6½	W	4	927	205-1225	165-1225	155-1225	16.00		105	53.3	740- 600		△8265	V4	1.37- .500
75	MP-BAA	Own	M	DI	4-5¾x6½	W	4	675	160-1400	125-1400	120-1400	16.00		100	72.0	510-1000		△8650	V4	1.62- .500
76	MP-BAB	Own	M	DI	4-6x6½	W	4	735	170-1400	135-1400	130-1400	16.00		104	66.5	567-1000		△8650	V4	1.62- .500
77	MP-CAA*	Own	M	DI	4-5¾x6½	W	4	675	180-1400	140-1400	135-1400	16.00		113	50.7	565-1000		△6825	V4	1.62- .500
78	MP-CAB*	Own	M	DI	4-6x6½	W	4	735	190-1400	150-1400	145-1400	16.00		111	47.0	635-1000		△6825	V4	1.62- .500
79	MP-BBJ	Own	M	DI	6-5½x6½	W	4	927	210-1400	170-1400	160-1400	16.00		98	50.0	685-1000		△8000	V4	1.37- .500
80	MP-CBJ*	Own	M	DI	6-5½x6½	W	4	927	225-1400	180-1400	170-1400	16.00		104	48.6	720-1000		△8265	V4	1.37- .500

For abbreviations, see pages 178 and 179

For Directory of the Engine Manufacturers listed above, see Page 53

MARINE, RAILCAR, OR INDUSTRIAL USE—*continued*

VALVES		PISTON					PISTON PIN		CONNECTING RODS			MAIN BEARINGS		INJECTION SYSTEM					AIR CLEANER	FUEL FILTER	STARTING METHOD		OVERALL DIMENSIONS			CLUTCH HOUSING	LINE NUMBER
Exhaust Port Diameter and Lift (In.)	Material	Length (In.)	Weight with Rings and Pin (Lb.)	No. of Compression Rings	No. of Oil Rings	Diameter and Length (In.)	Locked In—	Materials (S. A. E. No.)	Center to Center Length (In.)	Weight with Cap and Bushing (Lb.)	Number	Diameter (In.)	Make of Pump	Make of Valve	Valve Type—Open or Closed	Orifice	Pressure—Nozzle Opening (Lb. per Sq. In.)	Air Cleaner—Make	Fuel Filter—Make	Make	Type	Length—Fan to Flywheel (In.)	Width (In.)	Height—To Top of Air Cleaner (In.)	Clutch Housing (S. A. E. Numbers)	
1.25-.369	AA	5.00	3.70	3	2	1.13-3.34	F	3140	8.00	3.18	5	2.88	A-R	AB	C	Mu	3000	Opt	Opt	LDA	Ele	31 1/2	22 1/16	33		1
1.25-.369	AA	5.00	3.35	3	2	1.13-3.03	F	3140	8.00	3.18	7	2.88	A-R	AB	C	Mu	3000			LDA	Ele	40 3/32	22 1/16	35 1/4		2
1.25-.369	Alu	5.00	3.35	3	2	1.13-3.03	F	4140	8.00	3.18	7	2.88	AB	CA	C	Mu	3000	Opt	Opt	Ele		40 3/32	22 1/16	35 1/4		3
1.25-.369	Alu	5.00	3.35	3	2	1.13-3.03	F	4140	8.00	3.18	7	2.88	A-R	AB	C	Mu	3000					40 3/32	22 1/16	35 1/4		4
1.25-.369	AA	5.00		3	2	1.13-3.34	F	3140	8.00	3.18	7	2.88	A-R	AB	C	Mu										5
1.25-.369	Alu	4.84	4.47	3	2	1.50-3.62	F	4140	8.50	7.00	7	3.50	MP	Opt	C	Pi		Opt	Opt	Opt	Ele	44 1/2	27	42 1/4		6
1.25-.395	Alu	4.84	4.47	3	2	1.50-3.62	F	4140	8.50	7.00	7	3.50	MP	Opt	C	Pi		Opt	Opt	Opt	Ele	44 1/2	27	42 1/4		7
1.14-.406	Alu	4.14		2	1	1.13-3.13	F	1040	7.25	2.66	4	2.75	RM	AB	C	Si	1500	Don	Pur	DR	Ele	39 1/32	21 3/8	29 1/16	3	8
1.14-.406	Alu	3.78		2	1	1.13-3.13	F	1040	7.25	2.66	4	2.75	RM	AB	C	Si	1500	Don	Pur	DR	Ele	39 1/32	12 3/8	29 1/16	3	9
1.47-.500	Alu	6.44	6.64	3	2	1.50-3.71	F	1040	11.00	8.88	5	4.13	Own	Own	C	Si	900	Don	Pur	Own	GS	41 1/2	24	42 1/2	1	10
1.53-.532	Alu	6.19	7.36	4	2	1.62-4.09	F	1040	13.25	12.06	5	3.25	Own	Own	C	Si	900	Don	Pur	Own	GS	47 1/16	28 3/16	47 1/16	1	11
1.41-.532	Alu	6.44	6.75	3	2	1.50-3.71	F	1040	11.00	8.88	7	3.56	Own	Own	C	Si	900	Don	Pur	Own	GS	56 3/4	30 1/4	44	1	12
1.53-.532	Alu	6.19	7.53	4	2	1.62-4.10	F	1040	13.25	12.06	7	3.50	Own	Own		Mu	N	Don	Pur	DR	Ele	61 1/4	39 1/16	49 1/4	0	13
1.14-.406	Alu	6.78	11.37	3	1	2.00-4.56	F	1040	12.00	12.46	7	4.50	Own	Own		Mu	N	Don	Pur	DR	Ele	61 21/32	39 21/32	56 21/32	1	14
1.53-.462	Alu	6.62	11.37	3	1	2.00-4.56	F	1040	12.00	12.46	7	4.50	Own	Own	C	Si	900	Don	Pur	Own	GS	71 1/16	32 1/32	55 1/16	0	15
1.88-.625	Alu	7.50	12.79	3	2	1.88-5.00	F	1040	13.25	15.81	7	4.13	Own	Own	C	Si	900	Don	Pur	Own	GS	70 1/16	32 1/32	55 1/16	0	16
1.88-.625	Alu	7.50		3	2	1.88-5.00	F	1040	13.25	15.84	7	4.13	Own	Own	C	Si	900	Don	Pur	Own	GS	70 1/16	32 1/32	55 1/16	0	17
1.54-.360	AA	4.63		3	2	1.25-3.39			8.00		5	3.00	Sim			Mu		AC	P-A	Luc	Ele	31 1/2	25 1/4	33		18
1.54-.360	AA	4.63		3	2	1.25-3.39			8.00		7	3.00	Sim			Mu	2725				Ele	41	25 1/4	33		19
1.69-.563	AA	5.64	7.07	3	2	1.63-4.22	F	4140	11.25	7.75	7	4.00	AB	AB	C	Mu	2300	Don	Pur	LDI	A-El	53 1/2	28 1/16°	46 1/4	1	20
1.69-.563	AA	5.64	7.07	3	2	1.63-4.22	F	4140	11.25	7.75	7	4.00	AB	AB	C	Mu	2300	Don	Pur	LDI	A-El	53 1/2	34°	46 1/4		21
1.17-.470	AA	4.43	3.03	3	1	1.25-3.10	F	1041	8.75	3.12	3	(1)	AB	AB	C	Pi	1800	Don	Own	DR	Ele	35	20	38 7/8		22
1.38-.495	AA	5.06	5.37	3	2	1.50-3.88	F	1041	10.00	6.96	3	2.91	AB	AB	C	Pi	1800	Don	Own	DR	Ele	39 1/2	39 5/16	24		23
1.38-.495	AA	5.06	4.72	3	2	1.50-3.62	F	1041	10.00	6.96	4	2.91	AB	AB	C	Pi	1800	Don	Own	DR	Ele	57	24 5/8	42 5/8	1,2,3	24
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	5	4.00	Own	Own		Mu		Don	Own		Ele	58 1/16	29 1/16	62 1/16	0	25
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	5	4.00	Own	Own		Mu		Don	Own		Ele	58 1/16	29 1/16	62 1/16	0	26
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	5	4.00	Own	Own		Mu		Don	Own		Ele	58 1/16	29 1/16	62 1/16	0	27
1.62-.500	CI	7.75	23.7	4	2	2.12-4.98	F	1045	12.50	17.75	5	4.00	Own	Own		Mu		Don	Own		Ele	58 1/16	29 1/16	62 1/16	0	28
1.62-.500	CI	7.75	23.7	4	2	2.12-4.98	F	1045	12.50	17.75	5	4.00	Own	Own		Mu		Don	Own		Ele	75 1/16	37	60 1/16	00	29
1.37-.500	CI	7.75	19.7	4	2	2.12-4.73	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	75 1/16	37	77 1/4		30
							F				7	4.00	Own	Own							Ele	75 1/16	37	54 1/16	00	31
1.37-.500	CI	7.75	19.7	4	2	2.12-4.73	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	76 1/16	37	60 1/16	00	32
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	75 1/16	37	77 1/16		33
							F				7	4.00	Own	Own							Ele	76 1/16	37	54 1/16	00	34
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	76 1/16	37	77 1/16	00	35
1.62-.500	CI	7.75	23.7	4	2	2.12-4.98	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	76 1/16	37	54 1/16	00	36
1.62-.500	CI	7.75	23.7	4	2	2.12-4.98	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	58 1/16	29 1/16	62 1/16	0	37
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	5	4.00	Own	Own		Mu		Don	Own		Ele	58 1/16	29 1/16	62 1/16	0	38
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	5	4.00	Own	Own		Mu		Don	Own		Ele	58 1/16	29 1/16	62 1/16	0	39
1.62-.500	CI	7.75	23.7	4	2	2.12-4.98	F	1045	12.50	17.75	5	4.00	Own	Own		Mu		Don	Own		Ele	58 1/16	29 1/16	62 1/16	0	40
1.62-.500	CI	7.75	23.7	4	2	2.12-4.98	F	1045	12.50	17.75	5	4.00	Own	Own		Mu		Don	Own		Ele	77 1/16	37	60 1/16	0	41
1.37-.500	CI	7.75	19.7	4	2	2.12-4.73	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	77 1/16	37	54 1/16	0	42
1.37-.500	CI	7.75	19.7	4	2	2.12-4.73	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	77 1/16	37	60 1/16	0	43
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	77 1/16	37	54 1/16	0	44
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	77 1/16	37	60 1/16	0	45
1.62-.500	CI	7.75	23.7	4	2	2.12-4.98	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	77 1/16	37	54 1/16	0	46
1.62-.500	CI	7.75	23.7	4	2	2.12-4.98	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	75 1/16	37	77 1/16		47
											7	4.00									Ele	76 1/16	37	64 1/16		48
											7	4.00									Ele	76 1/16	37			49
											7	4.00									Ele	77 1/16	37			50
											7	4.00									Ele	77 1/16	37			51
											7	4.00									Ele	77 1/16	37	64 1/16		52
											7	4.00									Ele	77 1/16	37			53
											7	4.00									Ele	77 1/16	38	63		54
							F	DFS			7	4.00									Ele	77 1/16	38	63		55
							F	DFS			7	4.00									Ele	58 1/16	29 1/16	62 1/16	0	56
1.62-.500	CI	7.75	23.7	4	2	2.12-4.98	F	1045	12.50	17.75	5	4.00	Own	Own		Mu		Don	Own		Ele	76 1/16	37	60 1/2	00	57
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	76 1/16	37	77 1/4	00	58
1.62-.500	CI	7.75	23.7	4	2	2.12-4.98	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	76 1/16	37	54 1/16	00	59
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	76 1/16	37	64 1/16		60
											7	4.00									Ele	76 1/16	37	54 1/16	00	61
1.62-.500	CI	7.75	23.7	4	2	2.12-4.98	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	76 1/16	37			62
											7	4.00									Ele	77 1/16	37	60 1/2	0	63
1.62-.500	CI	7.75	23.2	4	2	2.12-4.73	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	77 1/16	37	60 1/2	0	64
1.62-.500	CI	7.75	23.7	4	2	2.12-4.98	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	77 1/16	37	54 1/16	0	65
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	77 1/16	37	54 1/16	0	66
1.62-.500	CI	7.75	23.7	4	2	2.12-4.98	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	77 1/16	37			67
											7	4.00									Ele					68
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	5	4.00	Own	Own		Mu		Don	Own		Ele	58 1/16	29 1/16	62 1/16	0	69
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	5	4.00	Own	Own		Mu		Don	Own		Ele	58 1/16	29 1/16	62 1/16	0	70
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	5	4.00	Own	Own		Mu		Don	Own		Ele	58 1/16	29 1/16	62 1/16	0	71
1.62-.500	CI	7.75	23.7	4	2	2.12-4.98	F	1045	12.50	17.75	5	4.00	Own	Own		Mu		Don	Own		Ele	58 1/16	29 1/16	62 1/16	0	72
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	5	4.00	Own	Own		Mu		Don	Own		Ele	75 1/16	37	60 1/16	00	73
1.37-.500	CI	7.75	19.7	4	2	2.12-4.73	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	75 1/16	37	54 1/16	00	74
1.37-.500	CI	7.75	19.7	4	2	2.12-4.73	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	58 1/16	29 1/16	62 1/16	0	75
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	5	4.00	Own	Own		Mu		Don	Own		Ele	58 1/16	29 1/16	62 1/16	0	76
1.62-.500	CI	7.75	23.7	4	2	2.12-4.98	F	1045	12.50	17.75	5	4.00	Own	Own		Mu		Don	Own		Ele	58 1/16	29 1/16	62 1/16	0	77
1.62-.500	CI	7.75	22.2	4	2	2.12-4.73	F	1045	12.50	17.75	5	4.00	Own	Own		Mu		Don	Own		Ele	58 1/16	29 1/16	62 1/16	0	78
1.62-.500	CI	7.75	23.7	4	2	2.12-4.98	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	77 1/16	37	60 1/16	0	79
1.37-.500	CI	7.75	19.7	4	2	2.12-4.73	F	1045	12.50	17.75	7	4.00	Own	Own		Mu		Don	Own		Ele	77 1/16	37	54 1/16	0	80

For abbreviations, see pages 178 and 179

For Directory of the Engine Manufacturers listed above, see Page 53

1961 DIESEL ENGINES FOR TRUCK, BUS, TRACTOR,

Line Number	ENGINE MAKE AND MODEL	Built Under License from	GENERAL																VALVES	
			Designed for	Type	Number of Cylinders Bore and Stroke (In.)	Cylinder Liners—Type	Cycle	Piston Displacement (Cu. In.)	With Bare Engine: Maximum Brake Hp. at Specified R.P.M.	With Standard Accessories: Max. Intermittent Hp. at Specified R.P.M.	With Standard Accessories: Continuous Sustained Hp. at Specified R.P.M.	Compression Ratio—to 1	Max. Combustion Pressure (Lb. per Sq. In.)	B.M.E.P. at Continuous Hp. (Lb. per Sq. In.)	Weight per Continuous Hp (Lb.)	Max. Torque in Lb. Ft. at Specified R.P.M.	Shipping Weight (Lb.): Automotive or Industrial	Shipping Weight (Lb.): Marine	Arrangement	Intake Port Diameter and Lift (In.)
1	Oliver 550	Lanova	Tr	EC	4-3½x3¾	W	4	155	46-2000	40-2000	35-2000	16.00	....	92	14.5	128-1400	508	....	VI	1.31-.360
2	770	Lanova	Tr	EC	6-3½x3¾	W	4	217	57-1800	48-1750	42-1750	16.00	....	88	17.6	168-1400	725	....	VI	1.13-.313
3	880	Lanova	Tr	EC	6-3¾x4	W	4	265	70-1800	58-1750	52-1750	16.00	....	88	14.8	208-1300	767	....	VI	1.38-.344
4	660		Tr		4-3½x3¾	W	4	155	46-2000	40-2000	35-2000	16.00	....	92	14.5	128-1400	508	....		1.31-.360
5	1800		Tr		6-3⅞x4	W	4	263	89-2000	69-2000	61-2000	16.00	....	88	13.6	230-1600	830	....	VI	1.51-.376
6	Onan DSP		I	PC	1-3½x3½	N	4	33.7	....	5.79-2000	5.5-1800	17.30	....	66	67.3	14.7-1800	370	....	VI	1.31-.271
7	DRP		I	PC	2-3½x3½	N	4	67.3	....	14.8-2400	11-1800	17.30	....	77	49.4	34.2-2100	543	....	VI	1.31-.271
8	DSL		I	PC	1-3½x4	N	4	38.5	....	7.7-1800	7.7-1800	18.00	....	86	56.1	21.8-1800	432	....	VI	1.31-.355
9	MDSL		M	PC	1-3½x4	N	4	38.5	....	7.7-1800	7.7-1800	18.00	....	86	62.0	21.8-1800	....	477		1.31-.355
10	DRN		I	PC	2-3½x3½	....	4	67.4	16.5-2100	16.5-2100	14.8-1800	17.20	....	95	36.4	42.3-1800	538	....	HI	1.31-.355
11	Palmer IHD-301		M	PC	6-3⅛x4½	N	4	301	110-3000	95-2800	85-2600	18.00	....	94	13.5	....	....	1150	VI	1.31-.406
12	P&H 387H-18		M,I	DI	3-4½x5½	W	2	261	140-1800	103-1800	90-1800	17.00	1200	96	....	425-1400	1245	1850	VI	No Valves
13	387H-18T		T,M,I,B	DI	3-4½x5½	W	2	261	165-1800	132-1800	115-1800	17.00	1200	98	....	508-1500	1280	1900	VI	No Valves
14	487H-18		M,I	DI	4-4½x5½	W	2	348	200-1800	144-1800	126-1800	17.00	1200	80	....	600-1400	1445	2600	VI	No Valves
15	487H-18T		T,M,I,B	DI	4-4½x5½	W	2	348	220-1800	183-1800	160-1800	17.00	1200	101	....	680-1600	1480	2650	VI	No Valves
16	587H-18		T,M,I,B	DI	6-4½x5½	W	2	522	280-1800	205-1800	180-1800	17.00	1200	96	....	835-1400	1840	3000	VI	No Valves
17	687H-18T		T,M,I,B	DI	6-4½x5½	W	2	522	330-1800	260-1800	226-1800	17.00	1200	98	....	950-1600	1894	3050	VI	No Valves
18	Red Wing D4-45	Wau	M	TC	4-3½x3¾	W	4	144	45-2400	40-2400	32-2000	17.00	650	88	45.6	90-1400	....	1460	VI	1.25-.312
19	D6-100	Wau	M	TC	6-4x4	D	4	302	100-2600	90-2400	80-2000	17.00	750	105	....	....	....	....	VI	1.38-.344
20	D6-140	Wau	M	TC	6-4¼x5	D	4	426	140-2400	120-2200	100-2000	17.00	....	93	....	....	....	....		1.75-.451
21	D6-160		M	TC	6-5¼x6	W	4	779	168-2000	138-2000	102-1400	17.50	750	80	42.2	600-1000	....	4310	VI	2.25-.500
22	D6-200		M	TC	6-6¼x6½	W	4	1197	225-1600	185-1600	152-1300	16.50	750	83	42.2	845-1000	....	4310	VI	2.37-.656
23	Sheppard 17B		Tr,M,R,I	PC	2-3½x4	W	4	77	25-1800	....	17-1800	22.00	....	99	25.6▲	56-1100	435	490	VI	1.37-.209
24	19B		Tr,M,R,I	PC	4-3½x4	W	4	154	50-1800	....	35-1800	22.00	....	99	17.1▲	116-1100	600	770	VI	1.37-.209
25	16B		Tr,M,R,I	PC	4-4½x5	W	4	319	88-1800	....	62-1800	22.00	....	86	17.7▲	216-1100	1100	1600	VI	1.56-.218
26	17D		Tr,M,R,I	PC	2-3½x4	D	4	94	30-1800	....	20-1800	22.00	....	93	21.8▲	58-1650	435	490	VI	1.37-.209
27	19D		Tr,M,R,I	PC	4-3½x4	D	4	189	67-1800	....	45-1800	22.00	....	105	13.3▲	131-1650	600	770	VI	1.37-.209
28	Sterling VD6		M,R,I	DI	6-8x9	W	4	2714	....	330-1200	325-1200	14.00	1000	80	28.2▲	1685-1000	9160	8850	VI	2.37-.728
29	VDS6S		M,R,I	DI	6-8x9	W	4	2714	750-1200†	660-1200	563-1200	11.35	1340	137	17.4▲	....	9775	12770	VI	2.37-.728
30	VDS8S		M,R,I	DI	8-8x9	W	4	3619	1000-1200†	850-1200	750-1200	11.35	1340	137	16.2▲	3310-1000	12100	17000	VI	2.37-.728
31	Waukesha 160-DLC		T,Tr,I	TC	4-3½x3¾	W	4	144	45-2400	41-2400	31-2000	17.00	750	71	18.3	102-1800	475	....	VI	1.25-.312
32	185-DLC		T,Tr,I	TC	4-3½x3¾	W	4	216	60-2400	54-2400	44-2000	17.00	750	69	18.1	152-1000	800	....	VI	1.25-.312
33	190-DLCA		T,Tr,I	TC	6-3⅜x4	W	4	265	84-2800	76-2800	58-2000	17.00	750	69	18.9	191-1400	868	....	VI	1.37-.349
34	195-DLCA		T,Tr,I	TC	6-4x4	D	4	302	98-2800	88-2800	67-2000	17.00	750	81	15.6	221-1800	965	....	VI	1.56-.344
35	135-DKB		T,B,Tr	TC	6-4¼x5	D	4	426	147-2800	132-2800	99-2000	17.50	750	88	16.3	328-1600	1386	....	VI	-.456
36	*135-DKBS		T,B,Tr	TC	6-4¼x5	D	4	426	185-2800	166-2800	121-2000	17.50	750	112	12.3	400-1800	1486	....	VI	1.75-.456
37	148-DKB		T,B	TC	6-5½x6	W	4	779	200-2100	180-2100	147-1800	17.50	750	79	16.4	584-1000	2320	....	VI	2.25-.477
38	*148-DKBS		T,B	TC	6-5½x6	W	4	779	280-2100	252-2100	194-1800	17.50	750	110	12.6	706-1800	2445	....	VI	2.25-.477
39	WAKDB		T,I	TC	6-6¼x6½	W	4	1197	258-1800	232-1800	195-1600	16.50	750	69	22.8	840-1000	3800	....	VI	2.37-.656
40	*WAKDBS		T,I	TC	6-6¼x6½	W	4	1197	400-1800	360-1800	296-1600	16.50	750	101	13.3	1062-1600	3925	....	VI	2.37-.656
41	NKDB		I	TC	6-7x8½	W	4	1905	297-1200	267-1200	239-1200	17.00	750	76	43.6	1383- 600	9285	....	VI	2.87-.709
42	*NKDBS		I	TC	6-7x8½	W	4	1905	390-1200	351-1200	312-1200	17.00	750	99	30.2	1730-1000	9435	....	VI	2.87-.709
43	LRDBC		I	TC	8-8½x8½	W	4	2894	415-1200	373-1200	332-1200	15.00	750	77	34.3	2160- 600	10300	....	VI	3.25-.704
44	LRDBCS		I	TC	8-8½x8½	W	4	2894	695-1200	625-1200	556-1200	15.00	750	100	26.9	3580- 800	10450	....	VI	3.25-.704
45	VLRDB		I	TC	12-8½x8½	W	4	5788	905-1200	815-1200	724-1200	15.00	....	82	21.4	4460- 600	15500	....	VI	3.25-....
46	*VLRDBS		I	TC	12-8½x8½	W	4	5788	1235-1200	1110-1200	988-1200	15.00	....	80	14.9	5440-1000	16300	....	VI	3.25-....
47	197-DLC		T,B,Tr,M,I	PC	6-4x4	D	4	302	91-2800	82-2800	65-2000	18.50	....	85	12.3	216-1600	800	....	....	-.344
48	197-DLCS		T,B,Tr,M,I	PC	6-4x4	D	4	302	131-2800	118-2800	94-2000	18.50	....	110	10.1	275-1800	850	....	VI	-.344
49	Witte AD		I	PC	1-3¼x4½	W	4	37.3	4.9-1200	4.12-1200	3.75-1200	18.00	700	70	211	22-1200	798	....	VI	1.31-.320
50	BD-9		I	PC	1-4¼x6	W	4	85.1	10.5- 900	10.2- 900	8.1- 900	16.50	700	80	107	58- 900	1320	....	VI	1.56-.406
51	CD		I	PC	1-5x8	W	4	157	15.5- 750	13.75-750	12.5- 750	16.70	700	84	149	112- 750	1860	....	VI	2.13-.531
52	100		Tr,M,R,I	PC	2-4x4	W	4	101	23.8-1800	....	19-1800	20.00	800	83	44.7	89-1800	850	....	VI	1.56-.332

ABBREVIATIONS

▲—Based on automotive or industrial weight.
*—Turbocharged.
‡—Including base.
♦—Includes radiator.
†—With all accessories.
^—Includes reverse and reduction gear.
▲—Dual fuel engine; diesel oil or natural gas.
°—Based on standard truck engine.
††—Air cooled.
(1)—Front and center, 2.75; rear, 3.00.
(3)—Also available as horizontal model.
(4)—To engine center line.
(12)—From bottom of pan to air cleaner mounting flange.
1—Turbocharged and after cooled.
2—Roots blown.
A—Air.
AA—Aluminum alloy.
AB—American Bosch.
AC—AC Spark Plug Co.
A-C—Allis-Chalmers Mfg. Co.
ACB—AC or Bosch.
A-D—AC and Donaldson.
AE—Air or electric.
AEG—Air, electric or auxiliary gasoline engine.
A-El—Air or Electric.
Al—Auto-Lite (electric), Ingersoll-Rand (air).
AL—Electric Auto-Lite Co.
Alu—Aluminum.
AM—Air-Maze Corp.
AMD—Air Maze or Donaldson.
AR—Airtex.
A-R—American Bosch or Roosa Master.
ARM—A.C. and Roosa Master.
AS—Air-swirl, direct injection.
AT—Arma steel, tin plated.
B—Buses.
BB—Bendix or Bosch.
B-D—Bosch or Democ.
B-F—Bosch and Fram.
B-R—Bosch or Roosa.
Bur—Burgess.
C—Closed.
CA—C.A.V.
Cb—Commercial and Bosch.
CI—Cast Iron.
Com—Commercial Filters Corp.
Cont—Continental Motors Corp.
Cr—Cars.
Cun—Cuno Engineering Corp.
D—Dry liners used.
DA—Delco-Remy and Auto-Lite.
Dem—Democ.
DFS—Drop forged steel.
DI—Direct injection.
Dtr—Ductile iron.
D-M—Donaldson or Air Maze.

For Directory of the Engine Manufacturers listed above, see Page 53

MARINE, RAILCAR, OR INDUSTRIAL USE—*concluded*

VALVES		PISTON				PISTON PIN		CONNECTING RODS			MAIN BEARINGS		INJECTION SYSTEM							STARTING METHOD		OVERALL DIMENSIONS				
Exhaust Port Diameter and Lift (In.)	Material	Length (In.)	Weight with Rings and Pin (Lb.)	No. of Compression Rings	No. of Oil Rings	Diameter and Length (In.)	Locked In—	Materials (S. A. E. No.)	Center to Center Length (In.)	Weight with Cap and Bushing (Lb.)	Number	Diameter (In.)	Make of Pump	Make of Valve	Valve Type—Open or Closed	Orifice	Pressure—Nozzle Opening (Lb. per Sq. In.)	Air Cleaner—Make	Fuel Filter—Make	Make	Type	Length—Fan to Flywheel (In.)	Width (In.)	Height—To Top of Air Cleaner (In.)	Clutch Housing (S. A. E. Numbers)	Line Number
1.13– .360	AA	3.75	.....	3	1	1.25–2.75	F	1045	6.75	2.69	3	2.25	RN	CA	C	Pi	1750	Don	ARM	DR	Ele	30 7/8	22 1/2	27 7/8	.....	1
1.00– .281	AA	3.75	.....	3	1	1.25–2.75	F	1045	6.75	2.69	4	2.25	RM	CA	C	Pi	1750	Don	ARM	DR	Ele	39 7/8	20 1/4	29 1/8	.....	2
1.03– .344	AA	4.19	.....	3	1	1.25–3.00	F	1045	6.75	2.94	4	2.63	RN	CA	C	Pi	1750	Don	ARM	DR	Ele	41 1/2	20 1/4	31 3/4	.....	3
1.13– .360	AA	3.75	.....	3	1	1.25–2.75	F	1045	6.75	.....	3	2.25	RM	CA	C	Pi	1750	.....	ARM	.....	.....	30 7/8	20 1/4	27 7/8	.....	4
1.17– .403	AA	4.44	.....	3	1	1.25–3.00	F	1045	6.75	.....	7	2.63	RM	CA	C	Pi	1750	.....	ARM	DR	Ele	43 5/8	18 3/4	28 5/8	.....	5
1.22– .285	Van	4.13	2.25	3	2	1.25–3.25	F	1040	6.13	2.61	2	2.75	Dem	Dem	C	Pi	1800	Don	Fra	Own	Ha	22 5/8	21 5/8	31 1/8	.....	6
1.22– .285	Van	4.13	2.25	3	2	1.25–3.25	F	1040	6.13	2.61	2	2.75	Dem	Dem	C	Pi	1800	Don	Fra	AL	Ele	23	30 1/4	27	.....	7
1.22– .355	Van	4.13	2.73	3	1	1.25–3.25	F	1040	6.13	2.61	2	2.75	Dem	Dem	C	Pi	1750	Fra	Fra	Own	Ele	20 1/8	22	26 1/16	.....	8
1.22– .355	Van	4.13	2.73	3	1	1.25–3.25	F	1040	6.13	2.61	2	2.75	Dem	Dem	C	Pi	1750	Don	Fra	Own	Ele	14 1/8	22	26 1/16	.....	9
1.22– .355	Van	4.13	.....	3	1	1.25–3.25	F	1040	6.13	2.61	2	2.75	A-C	A-C	C	Pi	1775	Don	Fra	AL	Ele	23 1/8	30 1/4	27	.....	10
.984– .406	AA	3.78	.....	2	1	.875–2.95	F	1040	7.25	2.68	4	2.38	RM	AB	C	Si	1500	.....	Pur	DR	Ele	51 1/8	24 1/2	30 3/4	.....	11
2.30– .550	AA	6.35	7.13	4	2	.....	.....	4140	11.84	8.40	3	4.00	RM	B-D	C	Si	2200	D-M	Ff	Al	A-El	43	28 1/8	52 1/16	1	12
2.30– .550	AA	6.35	7.13	4	2	.....	.....	4140	11.84	8.40	3	4.00	RM	B-D	C	Si	2200	D-M	Ff	Al	A-El	43	28 1/8	62	1	13
2.30– .550	AA	6.35	7.13	4	2	.....	.....	4140	11.84	8.40	4	4.00	RM	B-D	C	Si	2200	D-M	Ff	Al	A-El	45 1/8	28 1/8	52 1/16	1	14
2.30– .550	AA	6.35	7.13	4	2	.....	.....	4140	11.84	8.40	4	4.00	RM	B-D	C	Si	2200	D-M	Ff	Al	A-El	45 1/8	28 1/8	62	1	15
2.30– .550	AA	6.35	7.13	4	2	.....	.....	4140	11.84	8.40	6	4.00	RM	B-D	C	Si	2200	D-M	Ff	Al	A-El	59 1/8	28 1/8	52 1/16	1	16
2.30– .550	AA	6.35	7.13	4	2	.....	.....	4140	11.84	8.40	6	4.00	RM	B-D	C	Si	2200	D-M	Ff	Al	A-El	59 1/8	28 1/8	62	1	17
1.00– .281	CI	4.75	3.28	3	2	1.25–2.75	F	1045	6.75	1.97	3	2.25	AB	AB	C	Pi	1800	Opt	Opt	DR	Ele	42 7/8	24 3/8	29 5/8	2	18
1.18– .344	AA	4.18	2.75	3	2	1.25–3.44	F	1045	6.75	4.00	4	2.63	AR	.....	SP	1800	N	B-F	DR	Ele	59 1/4	26	32	.....	19
1.50– .375	AA	4.94	4.30	3	1	1.50–3.63	F	1045	9.50	5.75	7	3.25	AR	.....	.....	1800	.....	R-F	DR	Ele	62	24 1/2	35	.....	20
1.81– .531	Alu	7.25	.....	4	2	1.67–4.50	F	4145	11.75	.....	7	4.25	AR	AB	C	Pi	2000	Opt	Com	DR	Ele	74 5/8	32 1/8	47 1/8	0	21
2.00– .656	Alu	.....	.....	3	2	2.18–5.37	F	4145	13.25	.....	7	4.75	AB	AB	C	Pi	2000	Opt	Com	DR	Ele	88 1/16	34 7/8	51 11/16	0	22
1.25– .209	CI	3.81	3.19	3	2	1.06–2.93	F	Dlr	7.12	2.44	3	1.99	Own	Own	O	Si	3	AMD	Fra	AL	E-H	22 1/4	18	26	5	23
1.25– .209	CI	3.81	3.19	3	2	1.06–2.93	F	Dlr	7.12	2.44	5	1.99	Own	Own	O	Si	3	AMD	Fra	AL	E-H	32 5/8	18	26	5	24
1.56– .218	CI	5.48	6.88	3	2	1.50–3.75	F	Dlr	10.87	5.19	5	3.18	Own	Own	O	Si	3	AMD	Fra	AL	Ele	40 1/2	21 1/4	38 1/16	3	25
1.25– .209	CI	4.37	4.84	3	2	1.19–3.31	F	Dlr	7.12	2.44	3	2.25	Own	Own	O	Si	3	AM	Fra	AL	E-H	22 1/4	18	26	5	26
1.25– .209	CI	4.37	4.84	3	2	1.19–3.31	F	Dlr	7.12	2.44	5	2.25	Own	Own	O	Si	3	AMD	Fra	AL	E-H	32 5/8	18	27 5/8	4	27
2.37– .728	Alu	10.25	30.59	4	2	3.00–6.93	F	4340	18.00	46.05	7	6.00	BB	BB	C	Mu	3000	Opt	Cun	LN	A-El	.....	.....	.....	00	28
2.37– .728	AA	9.62	26.25	4	1	3.00–6.93	F	4340	18.00	46.05	7	6.00	AB	AB	C	Mu	3300	AM	Cun	LN	Ele	114 1/2	39 1/4	64	00	29
2.37– .728	AA	9.62	26.25	4	1	3.00–6.93	F	4340	18.00	46.05	9	6.00	AB	AB	C	Mu	3300	AM	Cun	LN	Ele	134 1/2	39 1/4	64	00	30
1.00– .281	AA	4.75	.....	3	2	1.25–2.75	F	1045	6.75	.....	3	2.25	AB	AB	C	Pi	1800	Opt	Opt	Opt	Ele	30 7/8	19	27 1/4	4	31
1.00– .281	AA	4.18	.....	3	2	1.25–2.75	F	1045	6.75	.....	4	2.25	AB	AB	C	Pi	1800	Opt	Opt	Opt	Ele	40 5/8	22	29	3	32
1.12– .349	AA	4.18	.....	3	2	1.25–3.00	F	1045	6.75	.....	4	2.63	AR	AB	C	Pi	1500	Opt	Opt	Opt	Ele	42 5/8	22	29	3	33
1.37– .344	AA	4.43	.....	3	2	1.25–3.43	F	1045	6.75	.....	4	2.63	AB	AB	C	Pi	1500	Opt	Opt	Opt	Ele	43	25 3/4	30	3	34
1.50– .375	AA	4.94	.....	3	1	1.50–3.62	F	1045	9.50	.....	7	3.25	AB	AB	C	Pi	1800	Opt	Opt	Opt	Ele	47 5/8	26	34 1/2	3	35
1.50– .375	AA	4.94	.....	3	1	1.50–3.62	F	1045	9.50	.....	7	3.25	AR	AB	C	Pi	1800	Opt	Opt	Opt	Ele	47 5/8	26	41 1/2	3	36
1.81– .507	AA	7.25	.....	4	2	1.87–4.50	F	4145	11.75	.....	7	4.50	AB	AB	C	Pi	2000	Opt	Ont	DRW	E-G	55 7/8	28 1/2	47 1/8	0,1	37
1.81– .507	AA	7.25	.....	4	2	1.87–4.50	F	4145	11.75	.....	7	4.50	AB	AB	C	Pi	2000	Opt	Ont	DRW	E-G	55 7/8	28 1/2	55 1/4	0,1	38
2.00– .656	AA	8.37	.....	2	2	2.18–5.37	F	4145	13.25	.....	7	4.75	AB	AB	C	Pi	2000	Opt	Ont	DRW	E-G	66 3/8	33	50 7/8	0	39
2.00– .656	AA	8.37	.....	4	2	2.18–5.37	F	4145	13.25	.....	7	4.75	AB	AB	C	Pi	2000	Opt	Ont	DRW	E-G	66 3/8	33	62 1/2	0	40
2.50– .709	AA	9.75	.....	2	2	2.50–6.03	F	4145	15.38	.....	7	5.25	AB	AB	C	Pi	2000	Opt	Opt	Own	G	78 1/8	48	60 1/4	00	41
2.50– .709	AA	9.75	.....	4	2	2.50–6.03	F	4145	15.38	.....	7	5.25	AB	AB	C	Pi	2000	Opt	Opt	Own	G	78 1/8	48	60 1/4	00	42
2.75– .704	AA	11.34	.....	4	1	3.00–7.00	F	4145	21.38	.....	7	5.50	AB	AB	C	Pi	2000	Opt	Opt	Own	G	97 1/2	49 1/8	69 5/8	00	43
2.75– .704	AA	11.34	.....	4	2	3.00–7.00	F	4145	21.38	.....	7	5.50	AB	R-B	C	Pi	2000	Opt	Opt	Own	G	113 1/2	49 1/8	69 5/8	0	44
2.75–	AA	.....	.....	4	2	3.00–7.00	F	4145	18.00	.....	7	6.25	AB	.....	.....	Pi	.....	.....	.....	Own	G	130	67	75 1/2	.....	45
2.75–	AA	.....	.....	4	2	3.00–7.00	F	4145	18.00	.....	7	6.25	AB	.....	.....	Pi	.....	.....	.....	Own	G	130	67	75 1/2	.....	46
..... – .344	Alu	4.19	.....	3	2	1.25–3.44	F	1045	6.75	.....	7	2.63	RM	AB	C	Pi	1850	.....	Fra	DR	Ele	44 7/16	22 1/2	32 1/16	.....	47
..... – .344	Alu	4.19	.....	3	2	1.25–3.44	F	1045	6.75	.....	7	2.63	RM	AB	C	Pi	1850	.....	Fra	DR	Ele	44 7/16	24 3/4	39 1/16	.....	48
1.19– .320	AA	4.44	2.25	4	1	1.25–2.72	F	1045	8.50	3.23	2	TR	AB	AB	C	Pi	1900	Uni	AR	AL	E-H	20 3/4	25 1/2	36 11/16	6	49
1.56– .406	CI	7.31	11.25	4	1	1.75–3.50	F	1035	15.00	8.25	2	TR	AB	AB	C	Pi	1600	Uni	AR	AL	E-H	45 1/4	38 1/16	41 1/2	5	50
1.88– .531	CI	9.19	15.18	4	2	1.81–4.22	F	1035	18.00	16.75	2	TR	AB	AB	C	Pi	1900	Uni	AR	AL	E-H	53 1/16	46 1/16	48 11/16	5	51
1.56– .332	AA	4.75	3.50	4	2	1.44–3.38	F	1035	8.00	5.75	2	3.00	RM	AB	C	Pi	1800	Ver	Com	DA	Ele	30 1/16	39 1/4	25 11/16	6	52

D-N—Delco-Remy or Novo.
Don—Donaldson Co.
D-P—Donaldson or Purolator.
DR—Delco-Remy Div.
DRW—Delco or Waukesha.
DS—Delco-Remy and Schwitzer.
EC—Energy cell.
E-G—Electric or auxiliary gasoline engine.
E-H—Electric or hand.
Ele—Electric.
F—Floating.
Ff—Fulflo. **Fra**—Fram Corp.
Fo—Ford.
G—Auxiliary gasoline engine.
GS—Gasoline and spark ignition.
Ha—Hand.
Har—Hartford Machine Screw.
HI—Horizontally In-head.
H-S—Hispano-Suiza.
I—Industrial.
LB—Leece Neville or Buda.
LDA—Leece Neville, Delco-Remy or Auto-Lite.
LDI—Leece Neville, Delco-Remy or Ingersoll-Rand.
LN—Leece Neville Co.
Luc—Lucas.
M—Marine.
MDF—Mann & Hammel, Donalds Fram.
MH—Mann and Hummel.
MP—Multi Plunger.
Mu—Multiple.
N—No or None.
O—Open.
ODS—Own, Delco-Remy and Schwitzer.
Opt—Optional.
P-A—Purolator or AC.
PC—Precombustion chamber.
Pi—Pintle.
P-S—Purolator or Stewart-Warner.
Pur—Purolator Products, Inc.
R—Railcars.
R-B—Robert Bosch.
R-F—Robert Bosch or Fram
RM—Roosa-Master.
Si—Single.
Sim—Simms.
SP—Single and pintle.
St—Steel.
T—Trucks.
TC—Turbulence chamber.
Tr—Tractors.
TR—Tapered roller bearings.
Uni—United Air Cleaner Div.
VI—Vertically In-Head.
V4—Vertically in-head, 2 exhaust and 2 intake valves per cylinder.
Van—Vanasil.
Var—Various.
Vor—Vortex.
W—Wet liners used.
Wau—Waukesha.

For Directory of the Engine Manufacturers listed above, see Page 53

SMALL GASOLINE ENGINES 1961

MAKE AND MODEL	Designed for Use	ENGINE: Number of Cycles	Type	No. of Cylinders	Bore and Stroke (In.)	Total Displacement (Cu. In.)	Compression Ratio (to – 1)	Valve Location	Horsepower: Rated at RPM	Horsepower: Continuous at RPM	Torque—Lb. Ft. at RPM	Weight (Lb.)	GOVERNOR: Used	GOVERNOR: Type	Ignition System Type	FUEL SYSTEM: Type	FUEL SYSTEM: Make	Fuel Used	Starting Method
AIR COOLED																			
Briggs & Stratton 60100	Ha, AC, Lm	4	Hor	1	2⅝x1½	6.65	4.90	L	2.00-3600	1.70-3600	3.14-3000	21	Y	Pn	Mag	SC	Own	G	REW
60300, 60400	General Purpose	4	Hor	1	2⅝x1½	6.65	4.90	L	2.25-3600	1.90-3600	3.42-3200	23	Y	Pm	Mag	FC	Own	G	REW
60500	Lm, Til, In	4	Ver	1	2⅝x1½	6.65	4.90	L	2.00-3600	1.70-3600	3.14-3000	18½	Y	Pn	Mag	SC	Own	G	REW
60700	Lm, Til, In	4	Ver	1	2⅝x1½	6.65	4.90	L	2.25-3600	1.90-3600	3.42-3200	19¼	Y	Pn	Mag	FC	Own	G	REW
61100	General Purpose	4	Hor	1	2⅝x1½	6.65	4.90	L	2.00-3600	1.70-3600	3.14-3000	21	Y	Pn	Mag	SC	Own	G	REW
61300, 61400	General Purpose	4	Hor	1	2⅝x1½	6.65	4.90	L	2.25-3600	1.90-3600	3.42-3200	23	Y	Pm	Mag	FC	Own	G	REW
61500	Lm, Til, In	4	Ver	1	2⅝x1½	6.65	4.90	L	2.00-3600	1.70-3600	3.14-3000	18½	Y	Pn	Mag	SC	Own	G	REW
61700	Lm, Til, In	4	Ver	1	2⅝x1½	6.65	4.90	L	2.25-3600	1.90-3600	3.42-3200	19¼	Y	Pn	Mag	FC	Own	G	REW
80100	General Purpose	4	Hor	1	2⅝x1¾	7.75	5.50	L	2.50-3600	2.10-3600	4.03-3000	21½	Y	Pn	Mag	SC	Own	G	REW
80300, 80400	General Purpose	4	Hor	1	2⅝x1¾	7.75	6.20	L	3.00-3600	2.55-3600	4.61-3100	25	Y	Pm	Mag	FC	Own	G	REW
80500	Lm, Til, In	4	Ver	1	2⅝x1¾	7.75	5.50	L	2.50-3600	2.10-3600	4.03-3000	18¾	Y	Pn	Mag	SC	Own	G	REW
80700	Lm, Til, In	4	Ver	1	2⅝x1¾	7.75	6.20	L	3.00-3600	2.55-3600	4.61-3100	19½	Y	Pn	Mag	FC	Own	G	REW
81100	General Purpose	4	Hor	1	2⅝x1¾	7.75	5.50	L	2.50-3600	2.10-3600	4.03-3000	21½	Y	Pn	Mag	SC	Own	G	REW
81300, 81400	General Purpose	4	Hor	1	2⅝x1¾	7.75	6.20	L	3.00-3600	2.55-3600	4.61-3100	25	Y	Pm	Mag	FC	Own	G	REW
81500	Lm, Til, In	4	Ver	1	2⅝x1¾	7.75	5.50	L	2.50-3600	2.10-3600	4.03-3000	18¾	Y	Pn	Mag	SC	Own	G	REW
81700	Lm, Til, In	4	Ver	1	2⅝x1¾	7.75	6.20	L	3.00-3600	2.55-3600	4.61-3100	19½	Y	Pn	Mag	FC	Own	G	REW
9	General Purpose	4	Hor	1	2¼x2¼	8.95	5.40	L	3.35-3600	2.83-3600	5.29-2700	61	Y	Me	Mag	FC	Own	G	Hbp
14	General Purpose	4	Hor	1	2⅝x2⅝	14.21	5.40	L	5.25-3600	4.20-3600	8.75-2700	76	Y	Me	Mag	FC	Own	G	Hbp
141300	General Purpose	4	Hor	1	2¾x2⅝	14.10	5.60	L	4.50-3600	4.12-2700	8.06-2300	41¼	Y	Pn	Mag	SC	Own	G	Rc
141700	General Purpose	4	Ver	1	2¾x2⅝	14.10	5.60	L	4.50-3600	3.80-3600	8.06-2300	38¼	Y	Pn	Mag	FC	Own	G	Rc
143300	General Purpose	4	Hor	1	2¾x2⅝	14.10	5.60	L	5.75-3600	4.90-3600	8.88-3000	44	Y	Pm	Mag	FC	Own	G	Rc
143700	General Purpose	4	Ver	1	2¾x2⅝	14.10	5.60	L	5.75-3600	4.90-3600	8.88-3000	40½	Y	Pn	Mag	FC	Own	G	Rc
19	General Purpose	4	Hor	1	3x2⅝	18.56	5.60	L	7.00-3600	5.95-3600	15.50-2200	78	Y	Me	Mag	FC	Own	G	Hbp
23A	General Purpose	4	Hor	1	3x3¼	22.97	5.90	L	9.00-3600	7.60-3600	15.79-2300	98	Y	Me	Mag	FC	Own	G	Hbp
84502, 85502	Lm	4	Hor	1	2⅝x1¾	7.75	5.50	L	2.50-3600	2.10-3600	4.61-3100	21	Y	Av	Mag	SC	Own	G	RR
84902, 85902	Lm	4	Hor	1	2⅝x1¾	7.75	6.20	L	3.00-3600	2.55-3600	4.03-3000	21	Y	Av	Mag	PC	Own	G	RR
80900, 81900	Lm, Til, In	4	Ver	1	2⅝x1¾	7.75	6.20	L	3.00-3600	2.55-3600	4.61-3100	21	Y	Pn	Mag	PC	Own	G	REW
141400	General Purpose	4	Hor	1	2¾x2⅝	14.10	5.60	L	4.50-3600	3.80-3600	8.06-2300	43	Y	Me	Mag	SC	Own	G	Rc
143400	General Purpose	4	Hor	1	2¾x2⅝	14.10	5.60	L	5.75-3600	4.90-3600	8.88-3600	44	Y	Me	Mag	FC	Own	G	Rc
60900, 61900	Lm, Til, In	4	Ver	1	2⅝x1½	6.65	4.90	L	2.25-3600	1.90-3600	3.42-3200	20½	Y	Pn	Mag	PC	Own	G	REW
60200, 61200	Ha, Lm	4	Hor	1	2⅝x1½	6.65	4.90	L	2.25-3600	1.90-3600	3.42-3200	23	Y	Pn	Mag	PC	Own	G	REW
80200, 81200	General Purpose	4	Hor	1	2⅝x1¾	7.75	6.20	L	3.00-3600	2.55-3600	4.61-3100	24	Y	Pn	Mag	PC	Own	G	REW
141200	General Purpose	4	Hor	1	2¾x2⅝	14.10	5.60	L	4.50-3600	3.80-3600	8.06-2300	43	Y	Me	Mag	SC	Own	G	Rre
23C	General Purpose	4	Hor	1	3x3¼	22.97	5.90	L	9.00-3600	7.60-3600	15.79-2300	98	Y	Me	Mag	FC	Own	G	RE
Clinton VS-400, CVS-400	General Purpose	2	Ver	1	2½x1⅝	5.76	.....	.....	2.50-3800	2.00-3800	3.60-2900	14	Y	Pn	Mag	FC	Own	GO	Rr
VS-2100	General Purpose	4	Ver	1	2⅝x1⅝	7.20	.....	L	2.25-3600	1.80-3600	3.57-2900	18¼	Y	Pn	Mag	FC	Own	G	Rr
VS-4100	General Purpose	4	Ver	1	2⅝x1⅝	8.30	.....	L	3.00-3600	2.40-3600	4.40-3000	18½	Y	Pn	Mag	FC	Own	G	Rr
VS-100	General Purpose	4	Ver	1	2⅝x1⅝	7.20	.....	L	2.50-3600	2.00-3600	3.80-3000	20	Y	Pn	Mag	FC	Own	G	Rr
VS-3100, AVS-3100	General Purpose	4	Ver	1	2⅝x1⅝	8.30	.....	L	3.25-3600	2.60-3600	5.00-2600	20	Y	Pn	Mag	FC	Own	G	Rr
FV-100, V-100	General Purpose	4	Ver	1	2⅝x1⅝	7.20	.....	L	2.75-3600	2.20-3600	4.20-3000	30¼	Y	Pn	Mag	FC	Own	G	Rr
FV, AFV, V, AV-3100	General Purpose	4	Ver	1	2⅝x1⅝	8.30	.....	L	3.50-3600	2.80-3600	5.30-2800	30½	Y	Pn	Mag	FC	Own	G	Rr
V-1100	General Purpose	4	Ver	1	2⅝x2½	9.50	.....	L	3.75-3600	3.00-3600	.....	31	Y	Pn	Mag	FC	Own	G	Rr
V-1200	General Purpose	4	Ver	1	2¾x2½	10.20	.....	L	4.50-3600	3.60-3600	3.25-2600	40	Y	Pn	Mag	FC	Own	G	Rr
A-400, A-490	General Purpose	2	Hor	1	2½x1⅝	5.76	.....	.....	2.50-3800	2.00-3800	3.50-3100	20	Y	Pn	Mag	FC	Own	GO	Rr
A-460	General Purpose	2	Hor	1	2½x1⅝	5.76	.....	.....	2.50- 633	2.00- 633	21.80- 515	28	Y	Pn	Mag	FC	Own	GO	Rr
A-2100, A-2190	General Purpose	4	Hor	1	2⅝x1⅝	7.20	.....	L	2.25-3600	1.80-3600	3.65-2800	21½	Y	Pn	Mag	FC	Own	G	Rr
A-2160	General Purpose	4	Hor	1	2⅝x1⅝	7.20	.....	L	2.25- 600	2.00- 600	22.00- 450	27½	Y	Pn	Mag	FC	Own	G	Rr
4100, 4190	General Purpose	4	Hor	1	2⅝x1⅝	8.30	.....	L	3.00-3600	2.40-3600	4.40-3000	21½	Y	Pn	Mag	FC	Own	G	Rr
4160	General Purpose	4	Hor	1	2⅝x1⅝	8.30	.....	L	3.00- 600	2.20- 600	28.90- 450	27½	Y	Pn	Mag	FC	Own	G	Rr
100, 190	General Purpose	4	Hor	1	2⅝x1⅝	7.20	.....	L	2.50-3600	2.00-3600	3.80-3000	23	Y	Pn	Mag	FC	Own	G	Rr
160	General Purpose	4	Hor	1	2⅝x1⅝	7.20	.....	L	2.50- 600	2.00- 600	22.80- 500	29	Y	Pn	Mag	FC	Own	G	Rr
H3100, 3100, 3190	General Purpose	4	Hor	1	2⅝x1⅝	8.30	.....	L	3.25-3600	2.60-3600	5.00-2700	23	Y	Pn	Mag	FC	Own	G	Rr
3160	General Purpose	4	Hor	1	2⅝x1⅝	8.30	.....	L	3.25- 600	2.60- 600	31.30- 450	29	Y	Pn	Mag	FC	Own	G	Rr
900, 990	General Purpose	4	Hor	1	2⅝x1⅝	8.30	.....	L	3.25-3600	2.60-3600	4.95-2700	41	Y	Fb	Mag	FC	Own	G	Rr
960	General Purpose	4	Hor	1	2⅝x1⅝	8.30	.....	L	3.25- 600	2.60- 600	33.00- 450	47	Y	Fb	Mag	FC	Own	G	Rr
B-1290	General Purpose	4	Hor	1	2¾x2⅛	10.20	.....	L	4.00-3600	3.20-3600	6.60-2500	45	Y	Fb	Mag	FC	Own	G	Rr
A-1600, A-1690	General Purpose	4	Hor	1	2¾x2⅝	16.30	.....	L	6.30-3600	5.04-3600	10.50-2100	87	Y	Fb	Mag	FC	Own	G	ER
A-1660	General Purpose	4	Hor	1	2¾x2⅝	16.30	.....	L	6.30- 600	5.04- 600	64.50- 365	100	Y	Fb	Mag	FC	Own	G	ER
B-2500, B-2590	General Purpose	4	Hor	1	3¼x3¼	25.00	.....	L	9.60-3600	7.68-3600	16.50-2500	103	Y	Fb	Mag	FC	Own	G	ER
B-2560	General Purpose	4	Hor	1	3¼x3¼	25.00	.....	L	9.60- 600	7.68-3600	96.00- 415	116	Y	Fb	Mag	FC	Own	G	ER
B-1260	General Purpose	4	Hor	1	2¾x2¼	10.20	.....	L	4.00-3600	3.20-3600	39.60- 420	45	Y	Fb	Mag	FC	Own	G	Rr
1860	General Purpose	4	Hor	1	3x2⅝	18.60	.....	L	7.50-600	5.25-600	74.00-465	102	Y	Fb	Mag	FC	Own	G	ER
1890	General Purpose	4	Hor	1	3x2⅝	18.60	.....	L	7.50-3600	5.25-3600	12.09-2200	89	Y	Fb	Mag	FC	Own	G	ER
Continental AU7, AU7B	General Purpose	4	(b)	1	2⅛x2	7.10	6.10	L	2.00-3600	1.70-3600	3.02-3000	36	Y	MA	Mag	Car	C-T	G	BR
AU7R	General Purpose	4	(b)	1	2⅛x2	7.10	6.10	L	2.00- 600	1.70- 600	18.10- 500	41	Y	MA	Mag	Car	C-T	G	BR
AD7, AW7	Lawn Mowers	4	Ver	1	2⅛x2	7.10	6.10	L	2.00-3600	1.70-3600	3.02-3000	41	Y	Av	Mag	Car	C-T	G	BR
AU8, AU8B	General Purpose	4	(b)	1	2⅛x2	7.95	6.65	L	2.85-3600	2.42-3600	4.25-2600	36	Y	MA	Mag	Car	C-T	G	BR
AU8R	General Purpose	4	(b)	1	2⅛x2	7.95	6.65	L	2.85- 600	2.42- 600	25.50- 433	36	Y	MA	Mag	Car	C-T	G	BR
AD8, AW8	Lawn Mowers	4	Ver	1	2⅛x2	7.95	6.65	L	2.85-3600	2.42-3600	4.25-2600	41	Y	Av	Mag	Car	C-T	G	BR
AU85	General Purpose	4	(b)	1	2⅛x2	8.40	6.10	L	3.00-3600	2.55-3600	4.50-2600	36	Y	MA	Mag	Car	C-T	G	BR
AU85R	General Purpose	4	(b)	1	2⅛x2	8.40	6.10	L	3.00- 600	2.55- 600	27.00- 433	41	Y	MA	Mag	Car	C-T	G	BR
AD85, AW85	Lawn Mowers	4	Ver	1	2⅛x2	8.40	6.10	L	3.00-3600	2.55-3600	4.50-2600	41	Y	Av	Mag	Car	C-T	G	BR
AU10	General Purpose	4	(b)	1	2⅝x2	10.80	5.75	L	4.00-3600	3.40-3600	4.90-3000	38	Y	Me	Mag	Car	Till	G	BR
AU10R	General Purpose	4	(b)	1	2⅝x2	10.80	5.75	L	4.00- 600	3.40- 600	29.40- 500	43	Y	Me	Mag	Car	Till	G	BR
Cushman Husky-M7	General Purpose	4	Ver	1	2⅝x2¾	14.90	5.10	L	6.10-3800	5.40-3200	9.00-2600	82	Y	Fb	Mag	Car	Till	G	Pe
Husky-M9	General Purpose	4	Ver	1	3x2¾	19.40	6.40	L	8.00-3800	7.50-3200	13.20-2600	86	Y	Fb	Mag	Car	Till	G	Pe
Gladden 40	General Purpose	4	Ver	1	2½x3	14.70	4.50	L	4.20-3200	4.20-3200	.....	78	Y	Ce	Mag	Car	MS	G	BP
50	General Purpose	4	Ver	1	2½x3	14.70	5.70	L	5.00-3200	5.00-3200	.....	78	Y	Ce	Mag	Car	MS	G	BP
75	General Purpose	4	Ver	1	2½x3	19.50	5.70	L	7.00-3200	7.00-3200	.....	83	Y	Ce	Mag	Car	MS	G	BP
Gravely L	General Purpose	4	Ver	1	3¼x3½	29.30	5.00	T	6.60-2600	5.40-2600	15.80-1600	298	Y	.....	Mag	Car	Zen	G	Bpe
Homelite 15	Generator Sets	2	Ver	1	1⅝x1¼	1.85	.....	Re	0.43-3600	.....	.....	.....	Y	Ce	Mag	Car	Zen	GO	R
20	Pumps	2	Ver	1	2⅛x1½	6.63	.....	Re	2.50-3600	.....	.....	(g)	Y	Ce	Mag	Car	Till	GO	R
35	GS, Pu	2	Ver	1	2⅛x1½	6.97	.....	Re	3.00-3600	.....	.....	90	Y	Ce	Mag	Car	Till	GO	R
8	GS, Pu	2	Ver	1	2⅝x2⅛	12.62	.....	Re	7.00-3900	.....	.....	.....	Y	Ce	Mag	Car	Till	GO	R
ZIP	Chain Saw	2	Ver	1	2x1½	4.71	.....	Re	.....	.....	.....	18⅛	N	.....	Mag	Car	TB	GO	Rc
BUZ	Chain Saw	2	Ver	1	2x1½	4.71	.....	Re	.....	.....	.....	.....	N	.....	Mag	Car	TB	GO	Rc
700	Chain Saw	2	Ver	1	2⅛x1½	5.64	.....	Re	.....	.....	.....	.....	Y	Av	Mag	Car	Till	GO	Rc
900	Chain Saw	2	Ver	1	2⅛x1⅝	6.82	.....	Re	.....	.....	.....	.....	N	.....	Mag	Car	Till	GO	Rc
K-82	KRE	2	Ver	1	2⅛x1½	5.64	.....	Re	.....	.....	.....	.....	N	.....	Mag	Car	TB	GO	Rr

For Directory of the Engine Manufacturers listed above, see page 53

1961 .... SMALL GASOLINE ENGINES

MAKE AND MODEL	Designed for Use	ENGINE: Number of Cycles	Type	No. of Cylinders	Bore and Stroke (In.)	Total Displacement (Cu. In.)	Compression Ratio (to – 1)	Valve Location	Horsepower: Rated at RPM	Horsepower: Continuous at RPM	Torque—Lb. Ft. at RPM	Weight (Lb.)	GOVERNOR: Used	GOVERNOR: Type	Ignition System Type	FUEL SYSTEM: Type	FUEL SYSTEM: Make	Fuel Used	Starting Method
AIR COOLED—continued																			
Jacobsen J-125	Lawn Mowers	2	(k)	1	2x1½	4.70	5.50		2.25-3600	1.90-3600	3.28-3600	22	Y	Av	Mag	Car	T-W	GO	ER
J-175	Lawn Mowers	2	(k)	1	2½x1¾	6.20	5.50		3.00-3600	2.55-3600	4.38-3600	22	Y	Av	Mag	Car	T-W	GO	ER
J-225V	Lawn Mowers	2	Ver	1	2¼x2	7.95	5.50		4.25-3600	3.50-3600	6.20-3600	36	Y	Av	Mag	Car	Till	GO	ER
Kohler K91	General Purpose	4	Hor	1	2⅝x2	8.86	6.50	L	4.00-4000	2.46-3000	5.75-2700	49	Y	Fb	Mag	Car	Cart	g,k,lpg,ng	Rre
K161	General Purpose	4	Hor	1	2⅞x2½	16.22	6.20	L	7.00-3600	4.68-3000	11.25-2400	67	Y	Fb	BM	Car	Cart	g,k,lpg,ng	Rre
KV161	General Purpose	4	Ver	1	2⅞x2½	16.22	6.20	L	7.00-3600	4.68-3000	11.25-2400	65	Y	Fb	Mag	Car	Wal	G	Rre
K241	General Purpose	4	Hor	1	3⅛x2⅞	23.80	6.00	L	9.80-3600	6.75-3000	16.70-2200	107	Y	Fb	BM	Car	Cart	G,lpg,ng	ER
K331	General Purpose	4	Hor	1	3⅝x3¼	33.60	6.20	L	12.50-3200	8.47-2800	24.00-1600	175	Y	Fb	BM	Car	Cart	G,lpg,ng	ER
K662	General Purpose	4	Op	2	3⅝x3¼	67.20	6.20	L	24.00-3200	16.95 2800	44.50-2250	250	Y	Fb	Mag	Car	CZ	G,lpg,ng	HE
Lawn Boy C-14, C-15	Lawn Mowers	2		1	2⅛x1½	5.32	6.50	Re	2.50-4000	2.13-4000	3.50-3000	17	Y	(d)	Mag	Car	Own	GO	Rre
C-41	Lawn Mowers	2		1	2⅛x1½	5.32	6.50	Re	2.50-4000	2.13-4000	3.50-3000	16⅜	Y	(d)	Mag	Car	Own	GO	Rre
C-50, C-60	Lawn Mowers	2		1	2⅛x1½	5.32	6.50	Re	2.50-4000	2.13-4000	3.50-3000	16⅜	Y	(d)	Mag	Car	Own	GO	Rre
C-70, C-71	Lawn Mowers	2		1	1¾x1½	4.43	4.10	Re	2.00-4000	1.70-4000	2.90-2800	16½	Y	(d)	Mag	Car	Own	GO	Rre
C-80	Tiller	2		1	2⅛x1½	5.32	6.50	Re	2.50-4000	2.13-4000	3.50-3000	16½	Y	(d)	Mag	Car	Own	GO	Rre
C-12-AA	Snow Plow	2		1	2⅛x1½	5.32	6.50	Re	2.50-4000	2.13-4000	3.50-3000	19	Y	(d)	Mag	Car	Own	GO	Rre
C-72	Tiller	2	Hor	1	1¾x1½	4.43	4.10		2.00-4000	1.70-4000		16½			Mag	Car	Own	G	Rc
McCulloch MAC-35-A	Chain Saws	2	Ver	1	1¾x1⅝	3.30	7.20	Re				19	N		Mag	Car	Own	GO	RR
1-41, 1-51	Chain Saws	2		1	2⅛x1⅝	4.90	6.00	Re				18			Mag	Car	Own	GO	RR
1-61	Chain Saws	2		1	2⅛x1⅝	4.90	6.00	Re				21			Mag	Car	Own	GO	RR
1-71	Chain Saws	2		1	2⅛x1½	5.30	7.00	Re				21			Mag	Car	Own	GO	RR
MC-10	General Purpose	2		1	2⅛x1½	5.30	8.90	Re				10			Mag	Car	Own	GO	
1-81	Chain Saws	2		1	2⅛x1½	5.30	7.00	Re				25			Mag	Car	Own	GO	RR
99	Chain Saws	2	Hor	1	2⅛x2	9.80	6.50	Ro				51	Y	RV	Mag	Car	Own	GO	RR
MC-6	KRE	2		1	2½x1½	5.30	8.90					10	N		Mag	Car	Till	GO	He
Mustang Standard	Motorcycles	4	Ver	1	2⅞x3	19.50	6.00	L	9.50-5000	9.50-5000			N		Mag	Car	Am	G	Pe
Special	Motorcycles	4	Ver	1	2⅞x3	19.50	7.00	L	10.50-5000	10.50-5000			N		Mag	Car	Am	G	Pe
Special 8	Motorcycles	4	Ver	1	2⅞x3	19.50	7.00	L	12.00-4800	12.00-4800			N		Mag	Car	Del	G	Pe
Onan AK	Generator Sets	4	Ver	1	2⅛x2½	12.20	5.50	L	3.76-3600	2.82-3600	5.80-1800	74	Y	(d)	Mag	Car	Cart	G	HE
AJ	GS, Rf, Af	4	Ver	1	2⅝x2½	14.90	6.25	L	5.50-3600	3.86-3600	8.00-2100	150	Y	(d)	BM	Car	Cart	G	HE
LK	GS, Rf	4	Ver	1	3⅛x3	25.00	5.50	L	5.10-1800	4.34-1800	14.90-1800	114	Y	(d)	BM	Car	Cart	G	HE
ACK	Generator Sets	4	Op	2	3x2¾	38.80	6.25	L	13.80-3600	10.00-3600	20.00-3600	125	Y	Me	Mag	Car	Till	G	Hc
VB	Generator Sets	4	Vee	2	3⅛x2¾	45.70	6.25	I	19.25-3600	16.20-3600	29.80-2800	140	Y	Me	Mag	Car	MS	G	Ele
CCK	General Purpose	4	Op	2	3⅛x3	50.00	5.50	L	13.60-3000	12.90-2700	27.80-1800	148	Y	(d)	BM	Car	MS	G	HE
CW	Generator Sets	4	Op	2	4x3½	88.00	5.50	L	20.00-1800	16.50-1800	58.30-1800	420	Y	Fb	Mag	Car	Zen	G	HE
Power Products AH-47	Chain Saws	2	Hor	1	2x1½	4.70	5.75		3.25-5000	2.80-4200	3.70-3350	13¾	Y	Av	Mag	Car	Till	GO	RR
AH-51	Lawn Mowers	2	Hor	1	2x1⅝	5.10			2.40-3800	2.20-3200	3.30-3000	14	Y	Fb	Mag	Car		GO	RR
AH-51	KRE	2	Hor	1	2x1⅝	5.10			2.50-4500	2.35-4000	3.30-3000	15¾	Y	Fb	Mag	Car		GO	RR
V-51		2	Ver	1	2x1⅝	5.10			2.50-4500	2.40-3800	3.30-3000	12¼	Y	Fb	Mag	Car		GO	
AH-58	KRE	2	Hor	1	2⅜x1⅛	5.80			5.50-6000	5.20-5500	5.00-5000	12¾			Mag	Car		GO	RR
AH-82	KRE	2	Hor	1	2½x1⅛	8.25			6.50-5500	6.20-5000	7.60-3000	13¾			Mag	Car		GO	RR
West Bend 330	General Purpose	2	(k)	1	1¾x1⅝	3.90		Re	1.50-3600	1.50-3600	2.30-3600	14½	Y	Av	Mag	Car	Till	G	RA
700	General Purpose	2	(k)	1	2¼x1¾	7.00	5.70	Re	5.00-5500	5.00-5500	5.17-5500	13½	N		Mag	Car	Till	G	Rc
580	General Purpose	2	(k)	1	2⅛x1¾	5.80	5.75	Re	4.00-5500	4.00-5500	4.20-5500	13½	N		Mag	Car	Till	G	Rc
580 Std.	GP, KRE	2	Hor	1	2⅛x1¾	5.80	5.75	Re	3.00-4000		3.94-4000	14	N		Mag	Car	Till	G	RR
V-580	General Purpose	2	(k)	1	2⅛x1¾	5.80		Re	5.00-6000	5.00-6000	4.37-6000	13½	N		Mag	Car	Till	G	RR
V-700	General Purpose	2	(k)	1	2¼x1¾	7.00	5.70	Re	6.00-6000	6.00-6000	5.25-6000	13½	N		Mag	Car	Till	G	Rc
Wisconsin ACN	General Purpose	4	Ver	1	2⅝x2¾	14.88	5.88	L	6.00-3600	4.80-3600	9.50-2800	76	Y	Fb	Mag	Car	SZ	G	HE
BKN	General Purpose	4	Ver	1	2⅞x2¾	17.80	5.88	L	7.00-3600	5.60-3600	12.00-2600	76	Y	Fb	Mag	Car	SZ	G	HE
AENL	General Purpose	4	Ver	1	3x3¼	23.00	6.24	L	9.20-3600	7.40-3600	16.50-2300	110	Y	Fb	Mag	Car	Zen	G	HE
AGND	General Purpose	4	Ver	1	3½x4	38.50	6.12	L	12.50-3200	10.00-3200	27.00-1900	180	Y	Fb	Mag	Car	Zen	G	HE
TH	General Purpose	4	Ver	2	3¼x3¼	53.90	6.25	L	16.40-2600	13.10-2600	34.00-2000	220	Y	Fb	Mag	Car	Zen	G	HE
THD	General Purpose	4	Ver	2	3¼x3¼	53.90	6.25	L	18.00-3200	14.40-3200	34.00-2000	220	Y	Fb	Mag	Car	Zen	G	HE
WATER COOLED																			
Kohler L161	Generator Sets	4	Hor	1	2¾x2½	16.22	6.20	L	6.60-3600	4.54-3000	11.50-2300	100	Y	Fb	Mag	Car	Cart	G,lpg,ng	ER
Onan MAJ	Generator Sets	4	Ver	1	2⅝x2½	14.90	6.25	L	3.60-2400	2.75-1800	8.00-2100	170	Y	(d)	Mag	Car	Cart	G	HE
MTK	Generator Sets	4	Ver	2	3x2¾	38.80	5.50	L	6.50-1800	7.10-1800	21.00-1800	400	Y	(d)	BM	Car	MS	G	HE
W3S	Generator Sets	4	Ver	2	3x2¾	38.80	5.50	L	6.50-1800	7.10-1800	21.00-1800	417	Y	(d)	BM	Car	M-Z	G	HE

ABBREVIATIONS

(b)—Inclined 20° up from horizontal.
(d)—Flyweights on camshaft.
(k)—Available with vertical or horizontal shaft.
Af—Auxiliary farm implement equipment.
AC—Air compressors.
Am—Amal. **Av**—Air vane.
BM—Battery and magneto.
BP—Belt or pulley.
Bpe—Belt, pulley or electric.
BR—Belt, pulley or recoil.
Car—Carburetor.
Cart—Carter Carburetor Corp.
Ce—Centrifugal.
C-T—Carter or Tillotson.
CZ—Carter or Zenith.
Del—Dellorto.
Ele—Electric.
ER—Electric or rope.
Fb—Flyball.
FC—Float feed carburetor.
G—Gasoline.
GO—Gasoline and oil mix.
GP—General purpose.
GS—Generator sets.
Ha—Home appliances.
Hbp—Hand crank, belt or pulley.
Hc—Hand crank.
HE—Hand crank or electric.
Hor—Horizontal.
I—Valves in head.
In—Industrial.
K—Kerosene.
KRE—Kart racing engine.
L—"L" head, valves at side.
Lm—Lawn mowers.
LPG—Liquified petroleum gas.
MA—Mechanical or air vane.
Mag—Magneto.
Me—Mechanical.
Mo—Mobile equipment.
MS—Marvel-Schebler Carburetor Div.
M-Z—Marvel-Schebler or Zenith.
N—No or none.
NG—Natural gas.
Op—Opposed.
PC—Pump carburetor.
Pe—Pedal.
Pm—Pneumatic and mechanical.
Pn—Pneumatic.
Pu—Pumps.
R—Rope.
RA—Rope or automatic rewinding rope.
Rc—Recoil.
Re—Reed valves.
RE—Rope or electric.
REW—Recoil, rope, electric or wind up.
Rf—Refrigeration equipment.
Ro—Rotary.
Rr—Recoil or rope.
RR—Rewinding rope.
Rre—Recoil, rope or electric.
RV—Rotary valve.
SC—Suction feed.
SZ—Marvel-Schebler or Zenith.
T—"T" head, valves in head and side.
TB—Tillotson and Brown.
Til—Tillers.
Till—Tillotson.
T-W—Tillotson and Walbro.
Vee—"V" type engine.
Ver—Vertical.
Y—Yes.
Zen—Zenith Carburetor Div.

For Directory of the Engine Manufacturers listed above, see Page 53

1961 .... OUTBOARD MOTORS

MAKE AND MODEL	Power Head	Number of Cylinders	Cylinder Material	Bore and Stroke (In.)	Piston Displacement (Cu. In.)	Engine Type	Brake Hp. at R.P.M. O.B.C. Rating	Engine Weight (Lb.) Fully Equipped	Piston Rings—Number and Width	Propeller: Diameter (In.)	Propeller: Pitch	Propeller: Right or Left Hand Rotation	Propeller: Number of Blades	Starting Device	Fuel Tank Capacity (Pts.)	Gear: Ratio	Gear: Teeth Pitch	Gear: Material (S.A.E. No.)	Gearcase Bearing	Magneto Make	Carburetor: Make	Carburetor: Size (In.)	Carburetor: Starting Mixture Obtained by—	Spark Plug—Make and Model	Bearings: Main	Bearings: Connecting Rod	Cooling System	Reverse	Lubrication—Pints Oil to 1 Gal. Gasoline
American Marc ..... AMarc 10[1]	-3 Port	1	CI	2⅝x4	21.60	OT	9.3-3500[2]	120	5-1/8[3]	9	9	R	3	Ele	24.00		10.00	8620	A	N	N			N	A	A	VP	Y	½
Bundy 500	Re-	2	.....	2¹¹/₁₆x2⅞	30.30	AF	30.0-5000	98	.....	9½	10½	.....	3	ER	48.00	14-25	.....	.....	A	.....	.....	.....	.....	.....	A	A	.....	.....	.....
Evinrude ..... Lightwin 3038	Re-2 Port	2	ACS	1⅞x1⅝	5.28	AF	3.0-4000	33	2-1/8	6½	6¼	L	2	RR	5.60	17-28	15.68	8620	P	Own	Own	½	C	AC-M44K[4]	P	P	Cen	Y	½
..... Ducktwin 3040	Re-2 Port	2	ACS	1⅞x1⅝	5.28	AF	3.0-4000	33	2-1/8	6½	6¼	L	2	RR	5.60	17-28	15.68	8620	P	Own	Own	½	C	AC-M44K[4]	P	P	Cen	Y	½
..... Fisherman 5522	Re-2 Port	2	ACS	1¹¹/₁₆x1½	8.84	AF	5.5-4000	56	3-1/8	8	7¼	R	2	RR	48.00	15-26	12.40	8620	P	Own	Own	½	C	AC-M44K[4]	P	P	Th	Y	½
..... Sportwin 10022	Re-2 Port	2	ACS	2⅝x1⅞	16.60	AF	10.0-4500	67	3-1/8	8½	8½	R	3	RR	48.00	13-23	10.95	8620	P	Own	Own	½	C	AC-M44K[4]	PA	A	Th	Y	½
..... Fastwin 15034	Re-2 Port	2	ACS	2½x2¼	22.00	AF	18.0-4500	79	3-1/8	9¼	11	R	3	RR	48.00	12-21	8.97	8620	P	Own	Own	½	C	AC-M44K[4]	A	A	Th	Y	½
..... Big Twin 35022	Re-2 Port	2	ACS	3-1/16x2⅜	43.89	AF	40.0-4500	129	3-1/8	10⅝	13¼	R	3	RR	48.00	12-21	7.50	8620	A	Own	Own	1 1/16	C	AC-M44K[4]	A	A	Th	Y	½
..... Lark 35524	Re-2 Port	2	ACS	3-1/16x2⅜	43.89	AF	40.0-4500	139	3-1/8	10⅝	13¼	R	3	Ele	48.00	12-21	7.50	8620	A	Own	Own	1 1/16	C	AC-M44K[4]	A	A	Th	Y	½
..... Starflite 50524	Re-2 Port	4	ACS	3⅝x2½	89.46	VT	75.0-4500	216	3-1/8	10	11	R	3	Ele	48.00	20-23	8.00	8620	A	Own	Own	1⅛	C	AC-M44K[4]	A	A	Th	Y	½
..... Starflite 50926	Re-	4	ACS	3⅝x2½	89.50	VT	75.0-4500	240	3-1/8	10	11	R	3	Ele	48.00	20-23	8.00	8620	A	Own	Own	1⅛	C	AC-M42K[4]	A	A	Th	Y	½
Gale ..... Buccaneer 3D17B	Re-3 Port	1	ACS	2¼x1½	5.32	S	3.0-4000	29	2-1/8	8⅝	6⅞	L	2	RR	8.00	13-22	13.56	8620	P	Own	Own	¾	Pr	Ch-J4J	P	P	RP	N	½
..... Buccaneer 5D18B	Re-3 Port	2	ACS	1¹¹/₁₆x1½	8.84	AF	5.0-4000	55	3-1/8	8	7¼	R	2	RR	48.00	15-26	12.40	8620	P	Own	Own	½	C	Ch-J4J	P	A	RP	Y	½
..... Buccaneer 15D11B	Re-3 Port	2	ACS	2⅝x2¼	19.94	AF	15.0-4500	77	3-1/8	9	10	R	3	RR	48.00	12-21	8.97	8620	A	Own	Own	1	C	Ch-J4J	A	A	Cen	Y	½
..... Buccaneer 25D18B	Re-3 Port	2	ACS	2¾x2⅝	35.70	AF	25.0-4500	120	3-1/8	10⅝	12½	R	3	RR	48.00	12-21	7.50	8620 H	A	Own	Own	1 1/16	C	Ch-J4J	A	A	Cen	Y	½
..... Buccaneer 25DE18B	Re-3 Port	2	ACS	2¾x2⅝	35.70	AF	25.0-4500	127	3-1/8	10⅝	12½	R	3	Ele	48.00	12-21	7.50	8620 H	A	Own	Own	1 1/16	C	Ch-J4J	A	A	Cen	Y	½
..... Buccaneer 40D14B	Re-3 Port	2	ACS	3-1/16x2⅝	43.90	AF	40.0-4500	125	3-1/8	10⅝	14¼	R	3	RR	48.00	12-21	7.50	8620 H	A	Own	Own	1 1/16	C	Ch-J4J	A	A	Cen	Y	½
..... Sovereign 40DE14B	Re-3 Port	2	ACS	3-1/16x2⅝	43.90	AF	40.0-4500	133	3-1/8	10⅝	14¼	R	3	Ele	48.00	12-21	7.50	8620 H	A	Own	Own	1 1/16	C	Ch-J4J	A	A	Cen	Y	½
..... Buccaneer 60D11B, 60D12B	Re-3 Port	4	ACS	3 x2½	70.70	AF	60.0-4500	198	3-1/8	10¼	10	R	3	RR	48.00	20-23	8.00	8620 H	A	Own	Own	1⅛	C	Ch-J4J	A	A	TC	Y	½
..... Sovereign 60DE11B, 60DE12B	Re-3 Port	4	ACS	3 x2½	70.70	AF	60.0-4500	205	3-1/8	10¼	10	R	3	Ele	48.00	20-23	8.00	8620 H	A	Own	Own	1⅛	C	Ch-J4J	A	A	TC	Y	½
Johnson ..... JW	Re-2 Port	2	ACS	1⅞x1⅝	5.28	AF	3.0-4000	34	2-1/8	6½	6¼	L	2	RR	4.88	17-28	.....	8620	P	Own	Own	.....	C	Ch-J4J	P	P	VP	Y	½
..... CD	Re-2 Port	2	ACS	1¹¹/₁₆x1½	8.84	AF	5.5-4000	56	3-1/8	8	7¼	R	2	RR	48.00	15-26	.....	8620	P	Own	Own	.....	C	Ch-J4J	P	P	VP	Y	½
..... OD	Re-2 Port	2	ACS	2⅝x1⅞	16.60	AF	10.0-4500	67	3-1/8	8½	8½	R	3	RR	48.00	13-23	12.39	.....	P	Own	Own	.....	C	Ch-J4J	PA	A	VP	Y	½
..... FD	Re-2 Port	2	ACS	2½x2¼	22.00	AF	18.0-4500	77	3-1/8	9¼	11	R	3	RR	48.00	12-21	11.11	.....	P	Own	Own	.....	C	Ch-J4J	A	A	VP	Y	½
..... RD	Re-2 Port	2	ACS	3-1/16x2⅝	43.90	AF	40.0-4500	131	3-1/8	Opt	Opt	R	3	RR	48.00	12-21	7.50	8620 H	A	Own	Own	1 1/16	C	Ch-J4J	A	A	VP	Y	½
..... RDS	Re-2 Port	2	ACS	3-1/16x2⅝	43.90	AF	40.0-4500	143	3-1/8	Opt	Opt	R	3	Ele	48.00	12-21	7.50	8620 H	A	Own	Own	1 1/16	C	Ch-J4J	A	A	VP	Y	½
..... V4S-13	Re-2 Port	4	ACS	3⅝x2½	89.50	VT	75.0-4500	220	3-1/8	Opt	Opt	R	3	Ele	48.00	20-23	8.00	8620 H	A	Own	Own	1¼	C	Ch-J4J	A	A	VP	Y	½
..... V4A, V4AL	Re-2 Port	4	ACS	3⅝x2½	89.50	VT	75.0-4500	240	3-1/8	Opt	Opt	R	3	Ele	48.00	20-23	8.00	8620 H	A	Own	Own	1¼	C	Ch-J4J	A	A	VP	Y	½
Mercury 60	Re-2 Port	2	ANS	1⅝x1½	7.20	AF	6.0[6]	.....	.....	Var	Var	R	.....	RR	26.00	.....	.....	.....	A	.....	Tll	.....	C	Ch-J7J	A	A	VP	Y	½
..... 100	Re-2 Port	2	ANS	2⅛x2⅛	16.50	AF	9.8[6]	.....	.....	Var	Var	L	.....	RR	48.00	.....	.....	.....	A	.....	Tll	.....	C	Ch-J7J	A	A	VP	Y	½
..... 150	Re-2 Port	2	ANS	2⅛x2⅛	16.50	AF	15.0[6]	.....	.....	Var	Var	L	.....	RR	48.00	.....	.....	.....	A	.....	Tll	.....	C	Ch-J7J	A	A	VP	Y	½
..... 200	Re-2 Port	2	ANS	2⅝x2⅛	22.00	AF	22.0[6]	.....	.....	Var	Var	L	.....	RR	48.00	.....	.....	.....	A	.....	Tll	.....	C	Ch-J6J	A	A	VP	Y	½
..... 350	Re-2 Port	4	ANS	2⅛x2⅛	40.00	IL	40.0[6]	.....	.....	Var	Var	R	.....	ER	48.00	.....	.....	.....	A	.....	Tll	.....	C	Ch-J6J	A	A	VP	Y	½
..... 400	Re-2 Port	4	ANS	2⅝x2⅛	44.00	IL	45.0[6]	.....	.....	Var	Var	R	.....	ER	48.00	.....	.....	.....	A	.....	Tll	.....	C	Ch-J6J	A	A	VP	Y	½
..... 500	Re-2 Port	4	ANS	2⅝x2⅛	44.00	IL	50.0[6]	.....	.....	Var	Var	R	.....	ER	48.00	.....	.....	.....	A	.....	Tll	.....	C	Ch-J6J	A	A	VP	Y	½
..... 700	Re-2 Port	6	ANS	2⅝x2⅛	66.00	IL	70.0[6]	.....	.....	Var	Var	Opt	.....	ER	48.00	.....	.....	.....	A	.....	Tll	.....	C	Ch-J6J	A	A	VP	Y	½
..... 800	Re-2 Port	6	ANS	2⅝x2⅛	76.00	IL	80.0[6]	.....	.....	Var	Var	Opt	.....	ER	48.00	.....	.....	.....	A	.....	Tll	.....	C	Ch-J4J	A	A	VP	Y	½
Neptune AA1-A	Re-2 Port	1	ACS	1-1/16x1½	2.87	S	1.7-4000	17	2-1/8	6	5	L	2	Ro	2.00	13-20	14.00	.....	P	Phe	Tll	.....	F	Ch-J8J	P	P	CP	Y	½
Scott[7] ..... Scotty	Re-2 Port	1	CI	2¼x1⅝	6.23	S	3.6-4000	36	2-1/8	7½	6	R	2	RR	8.00	13-21	12.56	8640	P	Phe	Tll	¾	C	Ch-H10J	P	A	VP	N	½
..... Fishing Scott	Re-2 Port	2	CI	1¹¹/₁₆x1⅜	10.00	AF	7.5-4500	39	2-1/8	6½	6¾	R	3	RR	24.00	17-25	15.15	4617	P	Phe	MS	¾	C	Ch-H10J	PA	A	VP	Y	½
..... Fleet Scott	Re-2 Port	2	CI	2¼x2⅛	16.40	AF	14.1-5000	68	3-1/8	6½	7	L	3	RR	48.00	13-21	10.75	3310	A	Phe	Car	¾	C	Ch-J6J	A	A	VP	Y	½
..... Sport Scott	Re-2 Port	2	CI	2¼x2⅛	29.97	AF	27.7-4800	102	3-1/8	9	10	R	3	ER	48.00	15-23	9.25	9310	A	Wico	Wal	1	C	Ch-J6J	A	A	VP	Y	½
..... Royal Scott	Re-2 Port	2	CI	3-1/16x2⅝	42.18	AF	43.7-5000	130	3-1/8	10	12½	R	3	ER	48.00	14-23	8.00	9310	A	Wico	Car	1 1/16	C	Ch-J4J	A	A	VP	Y	½
..... Flying Scott	Re-2 Port	3	CI	3-1/16x2⅝	63.27	AF	75.2-5200	168	3-1/8	10	12½	R	3	Ele	48.00	16-25	8.00	9310	A	MC	Car	1¼	C	Ch-J4J	A	A	VP	Y	½
West Bend 2101	Re-2 Port	1	ACS	1⅝x1⅜	3.76	S	2.0-4000	28	3-1/16	6½	4	L	2	RR	5.00	14-21	12.00	4140	P	Wico	Tll	½	C	Ch-H10J	P	P	Air	Y	½
..... 7001	Re-2 Port	2	ACS	2¼x1¹¹/₁₆	11.97	AF	7.5-4000	47	3-1/16	7½	7½	L	2	RR	20.00	14-21	12.00	4140	P	Wico	Tll	¾	C	Ch-H8J	PA	A	VP	Y	½
..... 12101	Re-2 Port	2	ACS	2⅝x2	17.72	AF	12.0-4000	64	3-1/16	8½	8	R	3	RR	34.00	14-21	10.00	4140	PA	Wico	Tll	¾	C	Ch-H8J	A	A	VP	Y	½
..... 18101, 18111	Re-2 Port	2	ACS	2⅞x2⅜	20.99	AF	18.0-4750	70	3-1/16	8½	8½	R	3	RR	48.00	14-21	10.00	4140	PA	Wico	Tll	¾	C	Ch-J4J	A	A	VP	Y	½
..... 25121, 25131	Re-2 Port	2	ACS	3 x1½	23.83	AF	25.0-4000	123	3-1/16	10⅝	11½	R	3	Ele	48.00[5]	13-21	8.00	8620	PA	FM	Tll	1 1/16	C	Ch-H8J	A	A	VP	Y	½
..... 40 01, 40111	Re-2 Port	2	ACS	3-1/16x2⅜	42.18	AF	40.0-4750	114	3-1/16	Opt	Opt	R	Opt	RR	48.00[5]	13-21	8.00	8620	PA	FM	Tll	1 1/16	C	Ch-J4J	A	A	VP	Y	½
..... 40121, 40131, 40161, 40171	Re-2 Port	2	ACS	3-1/16x2⅜	42.18	AF	40.0-4750	137	3-1/16	Opt	.....	R	.....	Ele	48.00[5]	13-21	8.00	8620	PA	FM	Tll	1 1/16	C	Ch-J4J	A	A	VP	Y	½
..... 80161	Re-2 Port	4	ACS	3-1/16x2⅜	84.36	AF	80.0-4750	212	3-1/16	Opt	.....	R	.....	Ele	48.00[5]	16-25	7.14	3310	PA	Wico	Tll	1 1/16	C	Ch-J4J	A	A	VP	Y	½

ABBREVIATIONS

1—Diesel engine.
2—Advertised brake horsepower.
3—Oil ring, 3/16.
4—Or Autolite, A21XA; Champion, J4J.
5—And 96.00.
6—Continuous duty horsepower rating.
7—Similar models produced under the trade names of Elgin and Wizard.
A—Anti-friction.
AC—AC Electronics Div.
ACS—Aluminum with cast iron sleeves.
AF—Alternate firing.
ANS—Aluminum with nickel iron sleeves.
C—Choke.
Car—Carter Carburetor Co.
Cen—Centrifugal.
Ch—Champion Spark Plug Co.
CI—Cast iron.
CP—Cam pump.
ER—Electric and rewinding rope.
Ele—Electric.
F—Floating.
FM—Fairbanks, Morse & Co.
IL—In line consecutive firing.
L—Left.
MC—McCulloch Corp.
MS—Marvel-Schebler.
N—None.
Opt—Optional.
OT—Opposed two-cycle.
P—Plain.
PA—Plain and anti-friction.
Phe—R. E. Phelon Co.
Pr—Primer.
R—Right.
Re—Reed valves.
Ro—Rope.
RP—Rotary pump.
RR—Rewinding rope.
S—Single.
TC—Thermostat controlled centrifugal.
Th—Thermostat.
Tll—Tillotsen Mfg. Co.
VP—Vane pump.
VT—V4, two-cycle.
Wal—Walbro.
Wico—Wico Electric Co.
Y—Yes.

For Directory of the Engine Manufacturers listed above, see Page 53

GAS TURBINES—AUXILIARY... 1961

MAKE AND MODEL	Engine Type	PERFORMANCE: BLEED AIR: Total Air Mass Flow (Lbs.-Min.)	PERFORMANCE: BLEED AIR: Rating (Cont. Air H.P.)	PERFORMANCE: BLEED AIR: RPM	PERFORMANCE: SHAFT POWER: Shaft Horsepower	PERFORMANCE: SHAFT POWER: RPM	Compressor Type	TURBINE: Type	TURBINE: Number of Stages	TURBINE: Number of Blades	TURBINE: GAS TEMPERATURE (Deg. F): Inlet	TURBINE: GAS TEMPERATURE (Deg. F): Exhaust	COMBUSTION CHAMBERS: Number	COMBUSTION CHAMBERS: Air Intake	FUEL SYSTEM: Number of Pumps	FUEL SYSTEM: Afterburning	FUEL SYSTEM: Nozzles per Combustion Chamber	FUEL SYSTEM: Max. Fuel Pressure (Psi.)	FUEL SYSTEM: Fuel Type	FUEL SYSTEM: Fuel Consumption (Lbs.-Shp.-Hr.)	IGNITION SYSTEM: Type of Ignition	IGNITION SYSTEM: Number of Ignitors	LUBRICATION SYSTEM: Type	LUBRICATION SYSTEM: Capacity (Qt.)	LUBRICATION SYSTEM: Normal Oil Pressure (Psi.)	LUBRICATION SYSTEM: Oil Consumption (Lb.-Hr.)	Starting Type	OVERALL DIMENSIONS (In.): Diameter	OVERALL DIMENSIONS (In.): Width	OVERALL DIMENSIONS (In.): Height	OVERALL DIMENSIONS (In.): Length	Dry Weight—With Accessories (Lb.)
UNITED STATES																																			
AiResearch GTP-30 Ser.	TSO				36	52800	C	RA	S	12	1550	1200	1	RF	1	N	1	230	JP-4,5	1.53	HE	1	W	1½	30–50	.15	E	22.0	16.0	16.0	20.0	48
GTP-70 Ser.	TSO				160	6000	C	R	S	12	1650	1250	1	RF	1	N	1	230	JP-3,4,5	1.10	HE	1	D	4	75–110	.07	E	28.6	30.0	25.0	31.0	200
GTC-85 Ser.	TCO	132	200	42200			C	RA	S	12	1650	1200	1	RF	1	N	1	230	JP-3,4,5;K	1.18	HE	1	D	4	50–100	.25	E	34.2	27.0	27.0	39.0	230
GTCP-85 Ser.	TCS	116	154	40800	170	40800	C	R	S	12	1600	1175	1	RF	1	N	1	230	JP-1,3,4,5;K	1.52	HE	1	D	4	80–100	.25	E	32.5	28.5	25.5	37.9	260
GTCP-105 Ser.	TCS	202	435	35140	125	6000	C	Ra	2	13[1]	1550	1000	6	RF	1	N	1	500	JP-3,4,5	1.04	HE	2	D	8	86–106	.25	E	25.9	23.0	25.9	56.5	389
Boeing 502-11-BA	TC		205				C					1075				N			G,JP-4,O		SG			6		Neg			24.0	24.0	45.0	410
Continental 141	TC	132	200				C									N			JP-4		Sp		D									241
General Electric T-58-6	TS				1050		A						1							.64								16.0			55.0	271
T-58-8	TS				1250		A						1							.61								16.0			55.0	285
CT-58-100	TS				1050		A						1							.64								16.0			55.0	280
T-58-110	TS				1250		A						1							.61								16.0			55.0	290
T-64-2	TS				2650		A													.51											91.0	854
T-64-6	TS				2650		A													.51										30.0	83.0	713
T-64-A	TS				2650		A													.51										30.0	68.0	700
720-722	TS				1000	12100	A						1																		40.0	85.0	320
Pratt & Whitney JFTD-12-A-3	TS				4050		A		4				8	DF	1	N			JP-4		Sp	2											870
Solar T-41-M	TS				50		C									N			G,JP-4,K,O		Sp			5		.01			29.1	26.3	36.8	125
T-G2-T	TS				65		C									N			G,JP-4,K,O		Sp			3		.01			12.5	15.5	24.0	67
T-150	TS				350		C									N			G,JP-4,K,O		Sp			7		.01			28.2	27.6	39.0	200
Stewart & Stevenson 4156	TS				210														K										40.0	48.0	100.0	7000
4140	TS				187														K										40.0	48.0	100.0	6800
4125	TS				150														K										40.0	48.0	90.0	6200
4100	TS				120														K										36.0	48.0	90.0	6000
490	TS				115														K										36.0	48.0	80.0	5000
GREAT BRITAIN																																			
Blackburn Palouste 502	TC	120		35000			C		2					DF	1	N	RI			1.48	To	1		3		.13	E		17.5		33.4	215
Palouste 505	TS	162		35000			C		2					DF	1	N	RI			1.26	To	1		3		.13	E		17.5		33.4	214
Artouste 510	TC	156		34200			C		2					DF	1	N	RI			2.24	To	1		3		.13	E		17.5		57.0	235
Artouste 510	TS	131		34200	100	34200	C		2					DF	1	N	RI			3.20	To	1		3		.13	E		17.5		57.0	235

ABBREVIATIONS

[1]—First stage only; second stage, 26.
A—Axial.
C—Centrifugal.
D—Dry sump.
DF—Direct flow.
E—Electric.
G—Gasoline.
HE—High energy.
K—Kerosene.
N—None.
Neg—Negligible.
O—Diesel oil.
R—Radial flow intake.
Ra—First stage, radial; second stage, axial.
RA—Radial flow intake; axial flow discharge.
RF—Reverse flow.
RI—Rotary injector.
S—Single.
SG—Spark and glow.
Sp—Spark.
TC—Turbo-compressor.
TCO—Turbo-compressor, open cycle.
TCS—Turbo-compressor and shaft, open cycle.
To—Torch.
TS—Turbo-shaft.
TSO—Turbo-shaft, open cycle.
W—Wet sump.

For Directory of the Gas Turbine Manufacturers listed above, see page 53

GAS TURBINES—PROPULSION 1961

Line Number	MAKE AND MODEL	ENGINE TYPE: Turbo-jet or Prop.	ENGINE TYPE: Single or Coupled	PERFORMANCE: TAKE-OFF: Thrust (Lb.)	TAKE-OFF: Prop. Shaft (Hp.)	TAKE-OFF: RPM	TAKE-OFF: Fuel Consumption	NORMAL: Thrust (Lb.)	NORMAL: Prop. Shaft (Hp.)	NORMAL: RPM	NORMAL: Fuel Consumption	MAX. CRUISING: Thrust (Lb.)	MAX. CRUISING: Prop. Shaft (Hp.)	MAX. CRUISING: RPM	MAX. CRUISING: Fuel Consumption	Propeller Gearing Type	COMPRESSOR: Type	COMPRESSOR: No. of Stages	COMPRESSOR: Pressure Comp. Ratio	COMPRESSOR: Blade Roots	TURBINE: No. of Stages	TURBINE: Blade Roots
	UNITED STATES																					
1	Allison J-33-A-41	TJ	S	5200	N	12180	1.17[1]		N			4275	N	11500	1.14[1]	N	Ce	Du	4.35	In		
2	T-56-A-1	TP	S	726	3460	13820	.54[2]	702	3094	13820	.55[2]	702	3094	13820	.55[2]	P	A	14	9.25	Do	4	FT
3	501-D-13	TP	S	726	3460	13820	.54[2]	702	3094	13820	.56[2]	145	1820	13820	.46[2]	P	A	14	9.46	Do	4	FT
4	T-56-A-7	TP	S	740	3755	13820	.53[2]	718	3443	13820	.54[2]	718	3443	13820	.54[2]	P	A	14	9.64	Do	4	FT
5	T-56-A-8	TP	S	740	3755	13820	.53[2]	718	3443	13820	.54[2]	718	3443	13820	.54[2]	P	A	14	9.64	Do	4	FT
6	T-56-A-9	TP	S	726	3460	13820	.54[2]	702	3094	13820	.55[2]	702	3094	13820	.55[2]	P	A	14	9.25	Do	4	FT
7	T-56-A-10W	TP	S	750	4200[11]	13820		718	3443	13820	.54[2]	718	3443	13820	.54[2]	P	A	14	9.64	Do	4	FT
8	T-63-A-1	TP	S	Ne	250	2057	.70	Ne	212	2057	.73	Ne	212	2057	.73	P	AC	7	6.40	In	4	In
9	T-63-A-3	TP	S	Ne	250	6022	.70	Ne	212	6022	.73	Ne	212	6022	.73	N	AC	7	6.40	In	4	In
10	Boeing 500-10	TJ		248	N		1.12[1]	235	N		1.12[1]		N			N	Ce	1	4.25	In	1	W
11	T-80-BO-2	TP	S		430	6200	.72		375	6000	.76					P	Ce	1	6.50	In	2	W
12	502-4	TP	S		475	2390	.71		400	2250	.74					P	Ce	1	6.50	In	2	FrT
13	502-10-W	TP	S		325	2900	.89		270	2700	.94					P	Ce	1	4.40	In	2	FrT
14	502-10-S	TP	S		360	3400			360	3400	.90					P	Ce	1	4.77	In	2	FrT
15	T-50-BO-4	TP			270	6000	1.02		240	5650	1.06					P	Ce	1	4.10	In		
16	502-10-WA	TP			265	3200	.93		270	3000	.94					P	Ce	1	4.40	In		
17	520-6	TP			550	6000	.65		500	6000	.67					P	Ce	1	6.00	In		
18	520-7	TP	S		430	6200	.72		375	6000	.76					P	Ce	1	6.50	In		
19	520-8	TP	S		550	2400	.65		500	2400	.67					P	Ce	1	6.00	In		
20	Continental J-69-T-25	TJ		1025	N	21730	1.14[1]	880	N	20700	1.12[1]		N			N	Ce	1	3.80			FT
21	J-69-T-29	TJ		1700	N	22000	1.10[1]	1375	N	20790	1.09[1]		N			N	CA	2	5.50			FT
22	CJ-69-1400	TJ	S	1400		21000	1.04	1200		20300	1.05						CA	2	5.00	In		
23	217-5-A	TS	S		500	42500	.67		405	41000	.70					P	CA	2	6.00	In		
24	217-6-A	TP	S		500	42500	.67		450	41750	.69					P	CA	2	6.00	In		
25	356-23	TJ	S	2400		20900	.98	1940		19650	.96						CA	3	6.00	In		
26	356-25	TJ	S	2550		21500	.99	2050		20300	.98						CA	3	6.00	In		
27	General Electric J-79	TJ		15800	N	7460	2.08	10000	N	7460	.84	8740	N	7170	.80	N	A	17	12.00	T	3	FT
28	J-93-3	TJ			N				N				N			N						
29	CJ-805-3	TJ		11200	N	7684	.81[1]	9500	N		.74[1]	8850	N		.73[1]	N	A	17	13.00	T	3	FT
30	T-64-4-A	TP	S		2700	1150	.50		2330		.51					P	A	14	12.60	De	2	
31	J-85-5	TJ		3850	N		2.20	2050	N		.98		N			N	A	8	6.50		2	
32	J-85-7	TJ		2450	N		.95	2000	N		.99		N			N	A	8	6.50		2	
33	CF-700-1	TuF		4000	N		.69[1]	3770	N		.69[1]	3254	N		.68[1]	N	A	8	6.50		2	
34	CJ-805-23-A	TuF		16100	N	7684	.59	14400	N		.54	13600	N		.53	N	A	17	13.00	T		
35	CJ-610	TJ		2700			.97										A	8	6.50			
36	CF-700-2	TuF		4000			.69										A	8	6.50			
37	CF-700-2-B	TuF		4200			.69										A	8	6.50			
38	CJ-805-3-B	TJ		11650	N	7460	.81	9500	N		.74	9190	N		.73	N	A	17	13.00	T		
39	CJ-805-23-C	TuF		16100	N	7460	.57	14400	N		.54	16100	N		.53	N	A	17	13.00	T		
40	Lycoming LTC1F-1	TP		113	960	1700	.65	100	825	1700	.67					P	AC	6	6.00	Do	2	FB
41	LTC4A-1	TP		190	1600	1320	.64	168	1325	1230	.66					P	AC	8	6.30	Do	3	FT
42	LTC1B-2 & 3	TS		102	860	6680	.77	96	770	6610	.80					P	AC	6	6.00	Do	2	FB
43	LTC1K-1	TS		113	960	6607	.69	107	825	6007	.70					P	AC	6	6.00	Do	2	FB
44	LTC1F-2	TP		124	1100	1700	.64	107	1000	1700	.66					P	AC	6	6.00	Do	2	FB
45	LTC1K-2	TS		124	1100	6610	.68	107	900	6800	.70					P	AC	6	6.00	Do	2	FB
46	LTC4B-2	TS		212	1900	6750	.67	196	1700	6460	.69					P	AC	8	6.30	Do	3	FT
47	LTC4B-7	TS		200	2200	14500	.60	174	1920	14000	.66					P	AC	8	6.30	Do	3	FT
48	Pratt & Whitney JT3C-2	TJ	S	13750	N		.95[1]	9500	N		.77[1]	8550	N		.77[1]	N	A	16	13.00	FT	3	
49	JT3C-6	TJ	S	13500	N		.90	9500	N		.77[1]	8100	N		.77[1]	N	A	16	13.00	FT	3	
50	JT3C-7	TJ	S	12000	N		.79[1]	10000	N		.77[1]	8500	N		.77[1]	N	A	16	13.00	FT	3	
51	JT3D-1	TuF	S	17000	N		.52[1]	14500	N		.51[1]	12500	N		.50[1]	N	A	15		FT	4	
52	JT3C-12	TJ	S	13000	N		.82[1]	11500	N		.78	10200	N		.77[1]	N	A	16	13.00	FT	3	
53	JT3D-2	TuF	S	17000	N		.52	14500	N		.51	13050	N		.50[1]	N	A	15		FT	4	
54	JT3D-3	TuF	S	18000	N		.54[1]	16400	N		.52[1]	14800	N		.51[1]	N	A	15		FT	4	
55	JT3D-4	TuF	S	18000	N		.54	16400	N		.52		N			N	A	15		FT	4	
56	JT4A-9	TJ	S	16800	N		.81[1]	13500	N		.75[1]	11850	N		.74[1]	N	A	15	12.00	FT	3	
57	JT4A-10	TJ	S	16800	N		.81[1]	13500	N		.75[1]	11850	N		.74[1]	N	A	15	12.00	FT	3	
58	JT4A-11	TJ	S	17500	N		.84[1]	14900	N		.77[1]	13800	N		.75[1]	N	A	15	12.00	FT	3	
59	JT4A-12	TJ	S	17500	N		.84[1]	14900	N		.77[1]	13800	N		.75[1]	N	A	15	12.00	FT	3	
60	JT4A-29	TJ	S	26500	N		2.20[1]	14300	N		.79[1]	12900	N		.77[1]	N	A	15	12.00	FT	3	
61	JY12A-5	TJ	S	3000	N		.96[1]	2570	N		.91[1]	2310	N		.90[1]	N	A	9	6.50	FT	2	
62	JT12A-7	TJ	S	3300	N		1.00[1]	2650	N		.92[1]	2385	N		.90[1]	N	A	9	6.50	FT	2	
63	JT12A-21	TJ	S	4025	N		2.42[1]	2350	N		.93[1]	2110	N		.92[1]	N	A	9	6.50	FT	2	
64	JT3C-26	TJ	S	18000			2.35	9150			.82	8250			.82		A	16	13.00	FT	3	
65	JT3D-2-A	TuF	S	17000			.52	14500			.51	13050			.50		A	15		FT	4	
66	JT3D-5-A	TuF	S	21000			.61	18000			.54	16400			.52		A	16		FT	4	
67	JT3D-8	TuF	S	20000			.60	18000			.54						A	16		FT	4	
68	JT3D-8-A	TuF	S	21000			.61	18000			.54						A	16		FT	4	
69	JT4A-14	TJ	S	17500			.84	14900			.77	13400			.75		A	15	12.00	FT	3	
70	PT6A-3	TP	S		500	2200	.69		450	2200	.71		400	2180	.73	P	AC	4	6.00		2	
71	PT6B-3	TS	S		500	6230	.70		450	6230	.72		400	6230	.74	P	AC	4	6.00		2	
72	JT8D-1	TuF	S	14000			.64	12600			.59	11400			.56		A	13		FT	4	
73	JT12A-6	TJ	S	3000			.96	2300			.90	2140			.89		A	9	6.50	FT	2	
74	JT12A-8	TJ	S	3300			1.00	2650			.92	2300			.90		A	9	6.50	FT	2	
75	Solar YT-62-S-2	TP		13	60	4045	1.20	13	60	4045	1.20					P	Ce	1	3.20	In		
76	T-150	TP		60	385	6000	.96	50	350	6000	1.10					P	Ce	1	3.70	In		
77	Williams WR2-1	TJ		70				70									Ce	1	4.00			
78	Wright J-65-W-16-A	TJ	S	7700	N	8300	.92[1]	6780	N	8070	.90[1]		N			N	A	13		FT	2	FT
	FRANCE																					
79	Hispano-Suiza HS-Nene 105	TJ		5100	N	12500	1.00[1]	4620	N	12200		4050	N	11800		N	Ce		4.40	FT	1	
80	HS-Tay 250	TJ		6280	N	11000	1.06[1]		N				N			N	Ce		4.25	FT	1	
81	HS-Verdon 350	TJ		7720	N	11100	1.10[1]	6834	N	10600		6172	N	10500		N	Ce		4.95	FT	1	

For References and Abbreviations, see pages 188 and 189

For Directory of the Gas Turbine Manufacturers listed above, see page 53

1961 .... GAS TURBINES—PROPULSION

Arrangement	COMBUSTION CHAMBERS: No. Used	Material	Air Intake	FUEL SYSTEM: No. of Pumps	No. of Emergency Pumps	Fuel Controls	Afterburning	Recommended Octane Rating of Fuel	No. Fuel Nozzles per Combustion Chamber	IGNITION SYSTEM: No. of Ignitors	Type of Igniter	LUBRICATION: Sump Capacity (Pts.)	Max. Oil Consumption (Pts./Hr.)	MAKE OF COMPONENT PARTS: Starter	Generator	Governor	Vacuum Pump	Fuel Pumps	OVERALL DIMENSIONS: Length (In.) With Extension Pipe	Length (In.) Without Extension Pipe	Max. Diameter (In.)	DRY WEIGHT: With Component Parts (Lb.)	Without Component Parts (Lb.)	Line Number
UNITED STATES																								
Cy	.....	.....	.....	1	N	M	N	JP-4	1	1	Sp	24.0	2.0	Gov	Gov	.....	.....	Pes	156.2	.....	48.9	1796	.....	1
Cn	8	SS	TF	2	1	HM	N	JP-4	1	2	Sp	Dry	3.6	Gov	Gov	Gov	Gov	Pes	.....	145.2	40.3	1675	.....	2
Cn	8	SS	TF	2	1	HM	N	AK	1	2	Sp	Dry	3.4	FA	FA	FP	.....	Pes	.....	145.2	42.5	1756	.....	3
Cn	8	SS	TF	2	1	HM	N	JP-4	1	2	Sp	Dry	2.8	Gov	Gov	Gov	Gov	Pes	.....	146.2	42.0	1848	.....	4
Cn	8	SS	TF	2	1	HM	N	JP-5	1	2	Sp	Dry	2.8	Gov	Gov	Gov	Gov	Pes	.....	146.2	42.0	1852	.....	5
Cn	8	SS	TF	2	1	HM	N	JP-4	1	2	Sp	Dry	3.6	Gov	Gov	Gov	Gov	Pes	.....	146.2	42.0	1679	.....	6
Cn	8	SS	TF	2	1	HM	N	JP-4,JP-5	1	2	Sp	Dry	2.8	Gov	Gov	Gov	Gov	Pes	.....	146.2	42.5	1845	.....	7
Cn	1	SS	RF	2	1	HM	N	JP-4	1	1	Sp	Dry	1.2	Gov	Gov	Gov	.....	.....	.....	40.9	18.9	147	.....	8
Cn	1	SS	RF	2	1	HM	N	JP-4	1	1	Sp	Dry	1.2	Gov	Gov	N	.....	.....	.....	38.2	18.9	106	.....	9
Cy	2	SS	TF	1	.....	M	N	G,De,K,JP-4	1	2	SG	12.0	Ne	Var	Var	Var	.....	Var	34.0	24.0	.....	210	210	10
Cy	2	SS	RF	1	.....	M	N	G,De,K,JP-4	1	2	SG	12.0	Ne	Var	Var	Var	.....	Var	42.0	42.0	24.0	325	325	11
Cy	2	SS	RF	1	.....	M	N	G,De,K,JP-4	1	2	SG	12.0	Ne	Var	Var	Var	.....	Var	68.7	68.7	25.5	325	325	12
Cy	2	SS	TF	1	.....	M	N	G,De,K,JP-4	1	2	SG	12.0	Ne	Var	Var	Var	.....	Var	41.5	41.5	24.3	325	325	13
Cy	2	SS	TF	1	.....	.....	N	G,De,K,JP-4	1	2	SG	12.0	Ne	Var	Var	Var	.....	Var	41.5	41.5	24.3	290	290	14
Cy	2	SS	DF	1	.....	M	N	.....	1	2	SG	12.0	Ne	Var	Var	Var	.....	Var	41.5	41.5	24.0	308	308	15
Cy	2	SS	DF	1	.....	M	N	.....	1	2	SG	12.0	Ne	Var	Var	Var	.....	Var	41.5	41.5	24.0	300	300	16
Cy	2	SS	RF	1	.....	M	N	.....	1	2	SG	12.0	Ne	Var	Var	Var	.....	Var	57.5	57.5	25.4	250	250	17
Cy	2	SS	RF	1	.....	M	N	.....	1	2	SG	12.0	Ne	Var	Var	Var	.....	Var	40.0	40.0	24.0	215	215	18
Cy	2	SS	RF	1	.....	M	N	.....	1	2	SG	12.0	Ne	Var	Var	Var	.....	Var	68.7	68.7	25.5	275	275	19
An	1	.....	.....	1	N	HM	N	JP-4	1	2	Sp	.....	.5[3]	FA	FA	Ben	FA	Ben	Var	49.9	22.3	384	.....	20
An	1	.....	.....	1	N	HP	N	.....	1	2	Sp	.....	1.0[3]	.....	.....	.....	.....	.....	Var	44.8	22.3	335	.....	21
An	1	.....	DF	1	1	HM	N	JP-4	1	2	Sp	Dry	.6	.....	.....	.....	.....	.....	44.8	.....	22.3	370	.....	22
An	1	.....	DF	1	1	HM	.....	JP-4	1	2	Sp	Dry	.4	.....	.....	.....	.....	.....	.....	42.5	19.4	210	.....	23
An	1	.....	.....	1	1	HM	.....	JP-4	1	2	Sp	Dry	.4	.....	.....	.....	.....	.....	.....	47.9	19.4	230	.....	24
An	1	.....	DF	1	.....	HM	N	JP-4,JP-5	1	2	Sp	Dry	.9	.....	.....	.....	.....	.....	.....	47.0	22.3	410	.....	25
An	1	.....	DF	1	.....	HP	.....	JP-4	1	2	Sp	Dry	.9	.....	.....	.....	.....	.....	.....	47.3	22.3	385	.....	26
Cn	10	SA	DF	.....	N	HM	Y	JP-4	1	1	Sp	.....	1.0	.....	.....	Ww	.....	.....	204.0	.....	36.0	3570	.....	27
Cn	10	SA	DF	1	N	HM	N	K,JP-4,JP-5	1	2	Sp	33.0	1.0	AR	Own	Ww	.....	Pes	188.9	109.6	31.6	3190	2800	29
An	1	.....	DF	1	.....	HM	N	JP-5	12	2	Sp	25.0	1.8[3]	AI	Own	N	N	Par	113.0	.....	36.0	1079	.....	30
.....	1	.....	.....	.....	.....	.....	Y	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	104.0	.....	21.0	538	.....	31
.....	1	.....	.....	.....	.....	.....	N	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	42.0	.....	17.0	325	.....	32
.....	1	.....	.....	.....	.....	HM	N	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	64.0	.....	34.0	585	.....	33
Cn	10	SA	DF	1	N	HM	N	K,JP-4,JP-5	1	2	Sp	33.0	1.0[3]	AR	Own	Ww	.....	Pes	144.0	.....	53.0	4270	3730	34
An	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	39.7	.....	17.6	355	.....	35
An	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	64.0	.....	34.0	615	.....	36
An	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	64.0	.....	34.0	615	.....	37
Cn	10	SA	DF	1	N	HM	N	K,JP-4,JP-5	1	2	Sp	33.0	1.0	AR	Own	Ww	.....	Pes	188.9	109.6	31.6	3200	2815	38
Cn	10	SA	DF	1	N	HM	N	K,JP-4,JP-5	1	2	Sp	33.0	1.0	R-L	Ben	Ww	.....	Pes	166.3	130.9	53.0	4465	3835	39
An	1	SS	RF	1	(4)	HM	N	JP-4	11	2	Sp	.....	1.1	.....	.....	.....	.....	CE	.....	58.4	23.0	530	.....	40
An	1	SS	RF	1	(4)	HM	N	JP-4	14	2	Sp	.....	1.6	.....	.....	.....	.....	HS	.....	58.8	24.2	695	.....	41
An	1	SS	RF	1	(4)	HM	N	JP-4	11	2	Sp	.....	1.1	.....	.....	.....	.....	CE	.....	47.6	23.0	484	.....	42
An	1	SS	RF	1	(4)	HM	N	JP-4	11	2	Sp	.....	1.1	.....	.....	.....	.....	CE	.....	47.6	23.0	485	.....	43
An	1	SS	RF	1	(4)	HM	N	JP-4	11	2	Sp	.....	1.1	.....	.....	.....	.....	CE	.....	58.4	23.0	522	.....	44
An	1	SS	RF	1	(4)	HM	N	JP-4	11	2	Sp	.....	1.1	.....	.....	.....	.....	CE	.....	47.6	23.0	485	.....	45
An	1	SS	RF	1	(4)	HM	N	JP-4	14	2	Sp	.....	1.6	.....	.....	.....	.....	HS	.....	44.0	24.2	600	.....	46
An	1	SS	RF	1	(4)	HM	N	JP-4	14	2	Sp	14.8	1.6	.....	.....	.....	.....	HS	.....	44.0	24.2	570	.....	47
Cn	8	.....	DF	1	.....	HM	N	JP-4	8	2	Sp	.....	2.0	.....	.....	.....	.....	Cc	.....	167.3	38.6	.....	3840	48
Cn	8	.....	DF	1	.....	HM	N	JP-4,JP-5	6	2	Sp	.....	3.2	.....	.....	.....	.....	Cc	.....	.....	38.9	.....	4234	49
Cn	8	.....	DF	1	.....	HM	N	JP-4,JP-5	6	2	Sp	.....	3.2	.....	.....	.....	.....	Cc	.....	.....	38.9	.....	3495	50
Cn	8	.....	DF	1	1	HM	Y	JP-4,JP-5	6	2	Sp	.....	3.2	.....	.....	.....	.....	.....	.....	.....	53.0	.....	4065	51
Cn	8	.....	DF	1	.....	HM	N	JP-4,JP-5	6	2	Sp	.....	3.2	.....	.....	.....	.....	.....	.....	.....	38.9	.....	3550	52
Cn	8	.....	DF	1	.....	HM	N	JP-4	6	2	Sp	.....	.....	.....	.....	.....	.....	.....	.....	.....	53.0	.....	3900	53
Cn	8	.....	DF	1	.....	HM	N	JP-4,JP-5	6	2	Sp	.....	3.2	.....	.....	.....	.....	.....	.....	.....	53.0	.....	4170	54
Cn	8	.....	DF	1	.....	HM	N	JP-4	6	2	Sp	.....	1.9	.....	.....	.....	.....	.....	.....	.....	53.0	.....	4170	55
Cn	8	.....	DF	1	.....	HM	N	JP-4,JP-5	6	2	Sp	.....	3.2	.....	.....	.....	.....	.....	.....	144.2	43.0	.....	5050	56
Cn	8	.....	DF	1	.....	HM	N	JP-4,JP-5	6	2	Sp	.....	3.2	.....	.....	.....	.....	.....	.....	144.2	43.0	.....	4845	57
Cn	8	.....	DF	1	.....	HM	N	JP-4,JP-5	6	2	Sp	.....	3.2	.....	.....	.....	.....	.....	.....	144.2	43.0	.....	5100	58
Cn	8	.....	DF	1	.....	HM	N	JP-4,JP-5	6	2	Sp	.....	3.2	.....	.....	.....	.....	.....	.....	144.2	43.0	.....	4895	59
Cn	8	.....	DF	1	1	HM	Y	JP-4	6	2	Sp	.....	3.6	.....	.....	.....	.....	.....	.....	259.3	43.0	.....	5960	60
Cn	8	.....	DF	1	.....	HM	N	JP-4,JP-5	1	2	Sp	.....	1.0	.....	.....	.....	.....	.....	.....	.....	21.9	.....	436	61
Cn	8	.....	DF	1	.....	HM	N	JP-4,JP-5	1	2	Sp	.....	2.0	.....	.....	.....	.....	.....	.....	.....	21.5	.....	465	62
Cn	8	.....	DF	1	.....	HM	Y	JP-4,JP-5	1	2	Sp	.....	1.2	.....	.....	.....	.....	.....	.....	.....	21.9	.....	551	63
Cn	8	.....	DF	1	.....	HM	Y	JP-4	6	2	Sp	.....	2.7	.....	.....	.....	.....	.....	253.0	.....	39.6	.....	4750	64
Cn	8	.....	DF	1	1	HM	N	JP-4	6	2	Sp	.....	1.9	.....	.....	.....	.....	.....	.....	.....	53.0	.....	4065	65
Cn	8	.....	DF	1	.....	HM	N	JP-4,JP-5	6	2	Sp	.....	3.2	.....	.....	.....	.....	.....	.....	.....	53.0	.....	4490	66
Cn	8	.....	DF	1	1	HM	N	JP-4	6	2	Sp	.....	1.9	.....	.....	.....	.....	.....	.....	.....	53.0	.....	4490	67
Cn	8	.....	DF	1	1	HM	N	JP-4	6	2	Sp	.....	1.9	.....	.....	.....	.....	.....	.....	.....	53.0	.....	4490	68
Cn	8	.....	DF	1	1	HM	N	JP-4	6	2	Sp	.....	3.2	.....	.....	.....	.....	.....	.....	.....	43.0	.....	4895	69
An	1	.....	.....	1	.....	HM	N	JP-4,G	14	2	Sp	24.0	1.0	.....	.....	.....	.....	.....	.....	52.0	18.5	.....	250	70
An	1	.....	.....	1	.....	HM	N	JP-4,G	14	2	Sp	24.0	1.0	.....	.....	.....	.....	.....	.....	48.5	18.5	.....	225	71
Cn	9	.....	DF	1	.....	HM	N	JP-4,JP-5	2	2	Sp	.....	3.2	.....	.....	.....	.....	.....	.....	.....	44.0	.....	2980	72
Cn	8	.....	DF	1	.....	HM	N	JP-4,JP-5	1	2	Sp	.....	1.0	.....	.....	.....	.....	.....	.....	.....	21.9	.....	436	73
Cn	8	.....	DF	1	.....	HM	N	JP-4,JP-5	1	2	Sp	.....	2.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	465	74
An	1	SS	DF	1	N	M	N	.....	8	1	Sp	6.0	.1	N	N	Own	N	Vic	.....	25.0	15.5	52	.....	75
Cn	1	321	Rad	1	.....	M	.....	.....	1	1	Sp	14.0	Ne	JH	.....	Ww	.....	Pes	.....	39.0	26.2	200	.....	76
An	1	.....	DF	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15.0	10.3	25	.....	77
An	1	SS	DF	2	N	M	N	JP-4,JP-5	36	2	Sp	.....	.1	Gov	Gov	.....	.....	Th	.....	121.9	37.5	2757	.....	78
FRANCE																								
Cy	9	.....	.....	2	.....	H	N	.....	1	2	HE	.....	.....	.....	.....	.....	.....	.....	.....	96.0	49.5	1606	.....	79
Cy	9	.....	.....	2	.....	H	N	.....	1	2	HE	.....	.....	.....	.....	.....	.....	.....	.....	100.0	50.0	1973	.....	80
Cy	9	.....	DF	2	.....	H	N	.....	1	2	HE	.....	.....	.....	.....	.....	.....	.....	.....	104.0	50.0	2072	.....	81

For References and Abbreviations, see pages 188 and 189

For Directory of the Gas Turbine Manufacturers listed above, see page 53

GAS TURBINES

Line Number	MAKE AND MODEL	ENGINE TYPE: Turbo-jet or Prop.	ENGINE TYPE: Single or Coupled	PERFORMANCE: TAKE-OFF: Thrust (Lb.)	TAKE-OFF: Prop. Shaft (Hp.)	TAKE-OFF: RPM	TAKE-OFF: Fuel Consumption	NORMAL: Thrust (Lb.)	NORMAL: Prop. Shaft (Hp.)	NORMAL: RPM	NORMAL: Fuel Consumption	MAX. CRUISING: Thrust (Lb.)	MAX. CRUISING: Prop. Shaft (Hp.)	MAX. CRUISING: RPM	MAX. CRUISING: Fuel Consumption	Propeller Gearing Type	COMPRESSOR: Type	COMPRESSOR: No. of Stages	COMPRESSOR: Pressure Comp. Ratio	COMPRESSOR: Blade Roots	TURBINE: No. of Stages	TURBINE: Blade Roots
	FRANCE—Continued																					
	Hispano-Suiza—Cont'd																					
1	HS-R-900	TJ		2645	N				N				N			N	A			FT	1	
2	HS-R-804	TJ		3306	N	12000	1.08[1]	3000	N		1.07[1]	2645	N	11250		N	A	7		FT	1	
3	S.N.E.C.M.A. Atar E-8	TJ		8180	N	8400	1.05[1]	6570	N	8050	1.01[1]	5740	N	7850	1.00[1]	N	A	8	4.80		1	
4	Atar G-2, G-3	TJ		9730	N	8400	2.05[1]	7500	N	8400	1.11[1]	5070	N	7850	1.08[1]	N	A	8	4.80		1	
5	Atar 8	TJ		9710	N	8400	.98[1]	7810	N	8150	.93	6840	N	8000	.92	N	A	9	5.50		2	
6	Atar 9-B	TJ		13250	N	8400	2.07[1]	9360	N	8400	1.01[1]	6500	N	8000	.97[1]	N	A	9	5.50		2	
7	Atar 9-C	TJ		13250	N	8400	2.03	9430	N	8400	1.01	6600	N	8000	.96	N	A	9	5.50		2	
8	Atar 9-D	TJ		13550	N	8400	2.03	9430	N	8400	1.01	6500	N	8000	.96	N	A	9			2	
9	Turbomeca Marbore VI	TJ		1060	N	21500	1.12[1]	926	N		1.17[1]		N			N	Ce	1	3.84		1	
10	Palas	TJ		352	N	34000	1.17[1]	285	N		1.13[1]		N			N	Co	1	3.95		1	
11	Marbore II	TJ		880	N	22600	1.15	710	N		1.09[1]	120	N			N	Co	1	3.85		1	
12	Gabize	TJ		2420	N	17500	1.05[1]	2000	N		1.00[1]		N			N	CA	2	5.20		1	
13	Gourdon	TJ		1600		21500	1.04										CA	2	5.20		1	
14	Artouste II C	TS			500	34000	.87										Ce	1	3.88		2	
15	Artouste III B	TS			550	34000	.65										CA	2	5.20		3	
16	Astazou II	TS			555	43500	.59										CA	2	6.00		3	
17	Turmo III C	FrT			1250	22500	.60										CA	2	5.50		3	
18	Turmo III D	FrT			1250	22500	.60										CA	2	5.50		3	
19	Palouste IV	Ac			252	34000											Ce	2	3.80		2	
20	Autan III	Ac			552	34000											A	4	4.15		3	
21	Astazou II	TP			555	43500	.59										CA	2	6.00		3	
22	Bastan IV	TP			987	33500	.61										CA	2	5.50		3	
23	Oredon II	TP			210	59000	.63										CA	2	6.00		3	
	GREAT BRITAIN																					
24	Blackburn Palas 600	TJ	S	390	N	35000	1.20[1]	340	N	33000	1.14[1]	359	N	34000	1.19	N	Ce	1	4.09	In	1	In
25	Artouste 600	TP			472	35000	.98						414	34000	1.03		Ce	1	4.00	In	2	In
26	Turmo 603	FrT			425	34000	1.11						375	33000	1.13		Ce	1	3.86	In	2	In
27	Nimbus A129	FrT			968	35000	.68						815	34000	.72		CA	3	6.50	In	3	In
28	Bristol Siddeley Viper 8	TJ		1750	N		1.07[1]		N			547	N		1.28[1]	N	A	7	4.05	CI	1	FT
29	Viper 9	TJ		1900	N		1.12[1]		N			580	N		1.33[1]	N	A	7	4.25	CI	1	FT
30	Viper 11	TJ		2500	N		1.04[1]		N			750	N		1.25[1]	N	A	7	4.37	Pn	1	FT
31	Viper 12	TJ		2700	N		1.08[1]		N			820	N		1.30[1]	N	A	7	4.47	Pn	1	FT
32	Orpheus Mk. 701	TJ		4700	N		1.06[1]		N			1670	N		1.33[1]	N	A	7	4.39	FT	1	FT
33	Orpheus Mk. 803	TJ		5000	N		1.08[1]		N			1680	N		1.34[1]	N	A	7	4.38	FT	1	FT
34	Orpheus Mk. 101	TJ		4230	N		.96[1]		N			1380	N		1.24[1]	N	A	7	4.39	FT	1	FT
35	Orpheus 12 SR	TJ		8170	N		1.62[1]		N			2280	N		1.25[1]	N	A	8	5.45	FT	2	FT
36	Sapphire Mk. 100 Series	TJ		8300	N		.87[1]		N			2280	N		1.05[1]	N	A	13	7.49	Fp	2	FT
37	Sapphire Mk. 200	TJ		11000	N		.88[1]		N			3160	N		1.08[1]	N	A	13	7.49	Fp	2	FT
38	Sapphire Mk. 209 (Sa7R)	TJ		12230	N		1.38[1]		N				N			N	A	13	7.49	Fp	2	FT
39	Olympus Mk. 104	TJ		13500	N				N				N			N	A					
40	Olympus Mk. 201	TJ		17000	N				N				N			N	A					
41	Olympus	TJ		33000	N				N				N			N	A					
42	Double Mamba ASMD-8	TP	C	730	3600		.66[2]					275	2100		.66[2]	P	A	11	5.80	Fp	3	FT
43	Proteus 765	TP		1260	3910		.60[2]					380	2197		.48[2]	P	CA	13	7.20	FT	4	FT
44	BS 53	TuF																				
45	BS 75	TuF		7550			.51	6985			.50	6470			.50	N	A					
46	Olympus BO 1-21	TJ		20000													A					
47	Orpheus Mk. 805	TJ		4000			1.04	4000			1.04						A	7		FT		
48	Viper ASV 20	TJ	S	3000			.97										A	8				
49	de Havilland Gyron Jr. DGJ-2	TJ	S	7100	N				N				N			N	A					
50	Gyron Jr. DGJ-10	TJ	S	10000	N				N				N			N	A					
51	Gnome H1200	TJ	C	2500	N	19500[2]	.60[2]	2350	N	19500	.63[2]	2100	N	19500	.64[2]	N	A	10	8.30	Do		
52	Gnome H1400	TJ	S	1440	N	19500	.62[2]	1400	N	19500	.60[2]	1175	N	19500	.62[2]	N	A	10	8.30	Do		
53	Gnome P-1000	TP	S	144	1000	20000	.67[2]	130	900	19000	.70[2]	120	800	17000	.73[2]	P	A	10	8.30	Do		
54	Napier Eland N. EL 3	TP	S	500	2805	12500	.67[2]	420	2180	12000	.71[2]	355	1710	11500	.76[2]	P	A	10[5]	7.00[6]	FT	3	FT
55	Eland N. EL 6	TP	S	700	3230	12500	.61[7]	625	2670	12000	.63[7]	590	2420	11750	.65[7]	P	A	10	7.00	FT		
56	Eland N. EL 7	TP		650	3250	12500	.61[7]	625	2900	12500	.63[7]	550	2600	12000	.63[7]	P	A	10[5]	7.00[6]	FT		
57	Eland 504	TP	S	700	3230	12500	.61[7]	625	2670	12000	.63[7]	590	2420	11750	.65[7]	P	A	10	7.00	FT		
58	Eland 508	TP	S	700	3230	12500	.61[7]	665	2930	12250	.62[7]	625	2670	12000	.63[7]	P	A	10	7.00	FT		
59	Eland E. 211[8]	TP	S	555	3500	12500	.64[7]	515	2850	12500	.66[7]	505	2650	12500	.69[7]		A	10	7.00	FT		
60	Eland E. 229A[8]	TP	S	545	3230	12500	.62[7]	505	2670	12500	.65[7]	495	2460	12500	.67[7]		A	10	7.00	FT		
61	Rolls-Royce Avon RA24, 24R	TJ	S	11250	N				N				N			N	A					
62	Avon RA 28	TJ	S	10000	N				N				N			N	A	15		Pn	2	FT
63	Avon RB 146	TJ	S	13220	N				N				N			N	A					
64	Avon RA 29/1	TJ	S	10500	N	8050	.80[1]	9125	N	7650	.76[1]	2340	N	7200	.94[1]	N	A	16	9.10	Pn	3	FT
65	Avon RA 29/3	TJ	S	11400	N	8050	.85[1]	9500	N	7750	.77[1]	2750	N	7500	.96[1]	N	A	16	9.70	Pn	3	FT
66	Avon RA 29/6	TJ	S	12200	N	8050	.78[1]	10820	N	7850	.74[1]	3130	N	7500	.92[1]	N	A	17	10.06	Pn	3	FT
67	Conway RCo 11	TJ	S	17250	N				N				N			N	A					
68	Conway RCo 12	TJ	S	17500	N	9980	.74[1]	14625	N	9590	.70[1]	4625	N	9240	.90[1]	N	A	16	14.10	Pn	3	FT
69	Conway RCo 15	TJ	S	18500	N	9895	.72[1]	15000	N	9500	.68[1]	5040	N	9200	.86[1]	N	A	16	14.30	Pn	3	FT
70	Conway RCo 42	TJ	S	20250	N	9955	.62[1]	16500	N	9575	.61[1]	5400	N	9250	.80[1]	N	A					
71	RB 141	TJ	S	15000	N	9895	.61[1]	14100	N	9725	.60[1]	4180	N	9390	.80[1]	N	A	16	16.80	Pn	3	FT
72	RB 163	TJ	S	9850	N	12490	.58[1]	9450	N	12260	.57[1]	2730	N	11860	.77[1]	N	A	16	16.80	Pn	3	FT
73	506 Dart RDa 3	TP	S	1480	1345	14500	.70[7]	1184	1075	13800	.75[7]	955	915	13600	.65[7]	P	Ce	2	5.40	In	2	FT
74	510 Dart RDa 6	TP	S	1670	1535	14500	.66[7]	1428	1310	14000	.70[7]	985	945	13600	.63[7]	P	Ce	2	5.40	In	2	FT
75	511 Dart RDa 6	TP	S	1650	1535	14500	.67[7]	1650	1535	14500	.67[7]	950	945	13600	.66[7]	P	Ce	2	5.40	In	2	FT
76	514 Dart RDa 6	TP	S	1650	1535	14500	.67[7]	1650	1535	14500	.67[7]	985	945	13600	.63[7]	P	Ce	2	5.40	In	2	FT
77	520 Dart RDa 7	TP	S	1815	1630	15000	.67[7]	1651	1495	14500	.66[7]	1295	1200	14000	.58[7]	P	Ce	2	5.60	In	3	FT
78	525 Dart RDa 7/1	TP	S	1910	1730	15000	.65[7]	1746	1585	14500	.67[7]	1295	1200	14000	.58[7]	P	Ce	2	5.60	In	3	FT
79	526, 527, 530, 531 Dart RDa 7/2	TP	S	2020	1835	15000	.64[7]	2020	1835	15000	.64[7]	1315	1220	14000	.57[7]	P	Ce	2	5.60	In	3	FT
80	528 Dart RDa 7/2	TP	S	2020	1835	15000	.64[7]	2020	1835	15000	.64[7]	1315	1220	14000	.57[7]	P	Ce	2	5.60	In	3	FT

For References and Abbreviations, see pages 188 and 189

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PROPULSION—*continued*

COMBUSTION CHAMBERS				FUEL SYSTEM						IGNITION SYSTEM		LUBRICATION		MAKE OF COMPONENT PARTS					OVERALL DIMENSIONS			DRY WEIGHT		
Arrangement	No. Used	Material	Air Intake	No. of Pumps	No. of Emergency Pumps	Fuel Controls	Afterburning	Recommended Octane Rating of Fuel	No. Fuel Nozzles per Combustion Chamber	No. of Ignitors	Type of Ignitor	Sump Capacity (Pts.)	Max. Oil Consumption (Pts./Hr.)	Starter	Generator	Governor	Vacuum Pump	Fuel Pumps	Length (In.) With Extension Pipe	Length (In.) Without Extension Pipe	Max. Diameter (In.)	With Component Parts (Lb.)	Without Component Parts (Lb.)	Line Number.
FRANCE—*Continued*																								
																								1
An	1			1		M	Y			2	HE									78.8	27.7	678		2
An	20		DF	1		H	N			2	SG	17.5	1.9	Own		BS		BS	198.0	92.5	38.8	1945		3
An	20		DF	1	1	H	Y			2	SG	17.5	1.9	Own		BS		BS	253.0		39.4	2720		4
An	20		DF	1		H	N			2	SG	11.5	1.3	Own		BS		BS	173.0	112.0	35.6	2310		5
An	20		DF	1	1	H	Y			2	SG	11.5	1.3	Own		BS		BS	266.0		40.0	2940		6
An	20		DF	1	1	H	Y			2	SG	11.5	2.5	Own		BS		BS	254.0		41.0	3020		7
An	20		DF	1	1	H	Y			2	SG	11.5	2.5	Own		BS		BS	254.0		41.0	2940		8
An								JP-1,JP-4		2	To									55.9	22.2	314		9
An								JP-1		2	To									48.0	16.0	158		10
An								JP-1,JP-4		2	To									61.5	22.2	314		11
An								JP-1		2	To									82.0	26.4	585		12
																				69.0	22.2	375		13
																				56.7	21.6	319		14
																				57.6	21.6	365		15
																				54.7	18.0	297		16
																				66.5	25.8	489		17
																				72.0	34.4	700		18
																				48.0	21.6	200		19
																				52.0	24.0	287		20
																				69.0	18.0	300		21
																				74.4	21.6	678		22
																				60.0	14.4	202		23
GREAT BRITAIN																								
An	1	NS	DF	1	N	M	N		RI	1	To	5.0	.3	Ple	Rot	Luc	N	Ple	43.8	43.5	17.5		170	24
An	1	NS	DF	1	N	M	N		RI	1	To	5.0	.3	Ple	Rot	Luc		Ple	54.0		17.5	295		25
An	1	NS	DF	1	N	M	N		RI	1	To	7.0	.3	Ple	Rot	Luc		Ple		47.9	26.4	370		26
An	1	NS	DF	1	N	M	N		RI	1	To	14.0	.5	Rot		Luc		Ple		61.6	28.9	390		27
An	1			1	N	H			24	2	HE		1.3	Rot		Luc	N	Luc		67.0	24.3		510	28
An	1			1	N	H			24	2	HE		1.3	Rot		Luc	N	Luc		67.0	24.3		510	29
An	1			1	N	H			24	2	HE		1.3			Luc	N	Luc		64.0	24.6		549	30
An	1			1	N	H			24	2	HE		1.3			Luc	N	Luc		64.0	24.6		549	31
Cn	1	NS		1	N	H			7	2	HE	12.0	2.0	Rot	Rot	Luc	N	Luc		73.0	32.4		790	32
Cn	1	NS		1	N	H			7	2	HE	14.0	2.0	BTH	Lab	Luc	N	Luc		75.5	32.4		835	33
Cn	1	NS		1	N	H			7	2	HE	12.0	2.0	Rot	Lab	Luc	N	Luc		77.5	32.4		900	34
Cn	1	NS			N	H	Y		7	2	HE	12.0	2.0	BTH	Lab	Luc	N	Luc		81.4	32.4		1110	35
An	1			1	N	H			36	2	HE		1.5	Rot	Rot	Dow	N	Dow		109.8	37.4		2670	36
An	1			1	N	H			24	2	HE		1.5		Rot	Dow	N	Dow		125.2	37.6		3110	37
An	1			1	N	H	Y		24	2	HE	1.0	1.5		Rot	Dow	N	Dow		130.7	37.4		3110	38
Cn	1			1	N	HM			8		HE			Rot	Rot	Luc		Luc		132.0	42.4			39
Cn	1			2	N	HM			8					Rot	EE	Luc		Luc		126.4	41.8			40
Cn	1			2	N		Y		8															41
An	1	NS		1	N	H			24	2	HE		.5	Rot		Luc	N	Luc		103.4	51.3		2500	42
Cy	8	NS		1	N	H			1	2			2.0	Rot	Rot	Luc	N	Luc		100.6	40.1		2900	43
																								44
																				92.4	33.4		1525	45
																				155.6	42.0			46
Cy	7	NS		1	N	H	N		7	2	HE		2.0	Rot	Lab	Luc		Luc		75.5	32.4		835	47
An																				66.7	24.5		575	48
An																				102.9	41.1			49
An							Y												191.0	70.0	6.0			50
An	2		DF	1			N	JP-1,JP-4,JP-5	16	1	Sp	Dry		Rot		Luc		Luc		78.0	1.0	1043	973	51
An			DF	1		E	N	JP-1,JP-4,JP-5	16	1	Sp	Dry		Rot				Luc		55.0	20.0	438	318	52
An	1		DF	1			N	JP-1,JP-4,JP-5	16		Sp	Dry		Rot		Luc		Luc		79.3	31.6	605	570	53
Cy	6	NS	DF	1	N	HM	N		1	2	Sp	Dry	2.0	Rot		Rtl		Luc		158.3	36.0	2435		54
Cy	6	NS	DF	1	N	HM	N	DERD 2482	1	2	Sp	Dry	2.0	Rot		Rtl		Luc		115.5	36.0	1820		55
Cy	6	NS	DF	1	N	HM	N	DERD 2482	1	2	Sp	Dry	2.0	Rot		Rtl		Luc		158.3	36.0	2525		56
Cy	6	NS	DF	1	N	HM	N	JP-1,JP-4	1	2	Sp	Dry	2.0	Rot		Rtl		Luc		115.5		1820		57
Cy	6	NS	DF	1	N	HM	N	JP-1,JP-4,JP-5	1	2	Sp	Dry	1.0	Rot	Ecl	Own		Luc		115.5	36.0	1820		58
An	10	NS	DF	1		HM	N	JP-1,JP-4,JP-5	1	2	Sp	Dry	2.0	Rot				Luc	135.0		36.0	1418		59
Cy	6	NS	DF	1		HM	N	JP-1,JP-4,JP-5	1	2	Sp	Dry		Rot				Luc	159.0		36.0	1500		60
Cn	6							K												126.0	41.5			61
Cn	6	NS	DF					K	1	2	HE									113.3	41.5		2890	62
Cn	6							K												145.0	41.5			63
Cn	6	NS	DF	2	N	M	N	K,JP-1,JP-2	1	2	HE	7.0	.6	Rot	Rot		N	Luc		126.0	39.0		3327	64
Cn	6	NS	DF	2	N	M	N	K	1	2	HE	7.0	.6	Rot	FA		N	Luc		126.0	39.0		3327	65
Cn	6	NS	DF	2	N	M	N	K	1	2	HE	6.5	.6	Rot	FA		N	Luc		133.0	39.0		3453	66
Cn	10							K												136.0	42.0			67
Cn	10	NS	DF	2	N	M	N	K	1	2	HE	39.0	1.0	FA	FA		N	Luc		136.0	42.0		4542	68
Cn	10	NS	DF	2	N	M	N	K	1	2	HE	39.0	1.0	FA	FA		N	Luc		136.0	42.0		4582	69
Cn	10							K												144.0	45.0		5009	70
Cn	10	NS	DF	2	N	M	N	K	1	2	HE	17.0	1.0	FA	FA		N	Luc		134.5	42.0		3813	71
Cn	10	NS	DF	1	N	M	N	K	1	2	HE	14.0	.8	Rot	AEI		N	Luc		110.0	37.0		2200	72
Cy	7	NS	DF	1	N	M	N	K,JP-1	1	2	HE	25.0	1.0	Rot	N		N	Luc		98.0	38.0	1134	1026	73
Cy	7	NS	DF	1	N	M	N	K,JP-1	1	2	HE	25.0	1.0	Rot	N		N	Luc		98.0	38.0	1244	1106	74
Cy	7	NS	DF	1	N	M	N	K,JP-1	1	2	HE	25.0	1.0	Rot	N		N	Luc		98.0	38.0	1244	1106	75
Cy	7	NS	DF	1	N	M	N	K,JP-1	1	2	HE	25.0	1.0	Rot	N		N	Luc		98.0	38.0	1221	1114	76
Cy	7	NS	DF	1	N	M	N	K,JP-1	1	2	HE	25.0	1.0	Rot	N		N	Luc		98.0	38.0	1314	1207	77
Cy	7	NS	DF	1	N	M	N	K,JP-1	1	2	HE	25.0	1.0	Rot	N		N	Luc		98.0	38.0	1335	1227	78
Cy	7	NS	DF	1	N	M	N	K,JP-1	1	2	HE	25.0	1.0	Rot	N		N	Luc		98.0	38.0	1335	1227	79
Cy	7	NS	DF	1	N	M	N	K,JP-1	1	2	HE	25.0	1.0	Rot	N		N	Luc		98.0	38.0	1371	1223	80

For References and Abbreviations, see pages 188 and 189

For Directory of the Gas Turbine Manufacturers listed above, see page 53

GAS TURBINES

Line Number	MAKE AND MODEL	ENGINE TYPE: Turbo-jet or Prop.	ENGINE TYPE: Single or Coupled	PERFORMANCE: TAKE-OFF: Thrust (Lb.)	TAKE-OFF: Prop. Shaft (Hp.)	TAKE-OFF: RPM	TAKE-OFF: Fuel Consumption	NORMAL: Thrust (Lb.)	NORMAL: Prop. Shaft (Hp.)	NORMAL: RPM	NORMAL: Fuel Consumption	MAX. CRUISING: Thrust (Lb.)	MAX. CRUISING: Prop. Shaft (Hp.)	MAX. CRUISING: RPM	MAX. CRUISING: Fuel Consumption	Propeller Gearing Type	COMPRESSOR: Type	COMPRESSOR: No. of Stages	COMPRESSOR: Pressure Comp. Ratio	COMPRESSOR: Blade Roots	TURBINE: No. of Stages	TURBINE: Blade Roots
	GREAT BRITAIN—*Continued*																					
	Rolls-Royce—Cont'd																					
1	529 Dart RDa 7/2	TP	S	2100	1910	15000	.667	2100	1910	15000	.667	1315	1220	14000	.577	P	Ce	2	5.60	In	3	FT
2	540 Dart RDa 10	TP	S	2553	2305	15000	.617	2553	2305	15000	.617	1620	1445	14200	.557	P	Ce	2	6.35	In	3	FT
3	542 Dart RDa 10/1	TP	S	3030	2750	15000	.....	2553	2305	15000	.617	1620	1445	14200	.557	P	Ce	2	6.35	In	3	FT
4	Tyne RTr 1	TP	S	4785	4320	15250	.517	4195	3835	13500	.507	2685	2445	12500	.407	P	A	15	13.50	Pn	4	FT
5	Tyne RTr 11	TP	S	5325	4850	15250	.487	4665	4270	14100	.497	3195	2845	13500	.397	P	A	15	13.50	Pn	4	FT
6	Tyne RTr 12	TP	S	5500	5095	15250	.477	5045	4685	14500	.477	3045	2825	13500	.397	P	A	15	13.50	Pn	4	FT
7	RB 108	TJ	S	2010	N	.....	.....	.....	N	.....	.....	.....	N	.....	.....	N	A	.....	.....	.....	.....	.....
8	RB 145	TJ	S	2750	N	.....	.....	.....	N	.....	.....	.....	N	.....	.....	N	A	.....	.....	.....	.....	.....
	ITALY																					
9	Fiat 4002.001	TJ	S	716	N	25000	1.21[1]	635	N	24400	1.21[1]	514	N	23200	1.19[1]	N	Ce	1	4.00	.....	.....	FT
10	4700.000	Ac	.....	.....	542	25000	1.20	.....	483	24000	1.27	.....	.....	.....	.....	.....	Ce	1	4.00	In	.....	.....

ABBREVIATIONS

1—Pound per hour per pound of thrust.
2—Pound per horsepower per hour.
3—Pound per hour.
4—Included in main pump.
5—Main compressor only; nine stage auxilliary compressor for helicopter rotor tip jets.
6—Main compressor only auxilliary compressor, 4.50.
7—Pound per equivalent shaft horsepower per hour.
8—Gas turbine with rear drive and hydraulic clutch for helicopter application.
11—Based on water/alcohol augmentation.
A—Axial.
Ac—Air compressor.
AC—Axial centrifugal.
AEA—Air Equipment Asnieres (France).
AI—Air impingement.
AK—Aviation kerosene.
An—Annular.
AR—Air Research Co.
Ben—Bendix.
BS—Bronzavia-Snecma.
BTH—British Thompson Houston, Ltd.
C—Coupled.
CA—Centrifugal and axial.
Ce—Ceco.
Ce—Centrifugal.
CE—Chandler-Evans Co.
Cl—Clamp.
Cn—Cannular.
Cy—Cylindrical.
De—Diesel fuel.
DF—Direct flow.
Do—Dovetail.
Dow—Dowty.
Du—Dual entry.
E—Electronic.
Ecl—Eclipse.
EE—English Electric Co., Ltd.
FA—Furnished by airframe manufacturer.
FB—Fir tree and ball.
Fp—Fir tree and pin.
FP—Furnished by propeller manufacturer.

For Directory of the Gas Turbine Manufacturers listed above, see page 53

Scheduled Air Carrier Operation Statistics

As reported by the Federal Aviation Agency

Number of Operators, Aircraft in Service, Route Mileage and Speed

Year	DOMESTIC LINES: Operators	Aircraft in Service	Average Number of Seats	Route Mileage Operated	Average Speed (mph)	INTERNATIONAL LINES: Operators	Aircraft in Service	Route Mileage Operated	Average Length of Pass. Trip	Average Speed (mph)
1945	20	421	19.68	48,516	155.4	4	97	38,885	942	150.7
1946	24	674	25.25	53,981	160.2	9	147	66,419	1,057	166.3
1947	28	810	29.93	62,215	168.2	12	154	95,903	1,332	191.1
1948	31	878	32.37	68,702	171.9	13	175	105,853	1,378	198.5
1949	37	913	35.03	72,667	179.0	13	177	109,011	1,351	207.1
1950	38	960	37.47	77,440	181.2	12	160	106,401	1,316	218.4
1951	38	981	39.55	78,913	184.6	12	140	108,763	1,273	223.5
1952	35	1,078	42.71	77,894	190.8	13	149	110,465	1,277	226.8
1953	32	1,139	46.07	78,384	197.8	14	161	111,826	1,254	229.9
1954	32	1,175	50.06	78,294	205.8	15	161	112,488	1,314	242.1
1955	31	1,212	51.62	78,992	209.0	15	147	114,005	1,294	245.4
1956	30	1,347	52.43	84,189	212.6	13	198	113,894	1,298	249.1
1957	30	1,494	53.99	88,325	216.1	14	170	133,884	1,305	254.0
1958	30	1,546	55.83	90,506	219.6	15	185	135,617	1,304	257.8
1959	30	1,596	59.04	96,655	224.0	15	156	132,495	1,334	265.4

Personnel, Payroll and Average Salary—1959

Type of Employee	DOMESTIC LINES: Personnel	Annual Payroll	Avg. Annual Salary	INTERNATIONAL LINES: Personnel	Annual Payroll	Avg. Annual Salary
Pilots and Copilots	12,175	$178,688,257	$14,676.65	1,764	$28,045,140	$15,898.61
Other Flight Personnel	3,370	36,962,330	10,968.05	540	6,627,756	12,273.62
Stewards, Stewardesses, Pursers	9,089	34,672,308	3,814.75	1,564	7,846,998	5,017.26
Communications Personnel	3,240	15,956,072	4,924.71	1,045	3,318,668	3,175.76
Mechanics	26,684	177,888,787	6,666.90	4,705	28,680,732	6,095.80
Aircraft and Traffic Service Personnel	35,643	195,486,400	5,484.57	7,163	30,322,843	4,233.26
Office Employees	26,949	146,713,774	5,444.13	6,986	32,158,643	4,603.30
All Other Employees	14,092	97,830,822	6,658.78	4,881	25,371,188	5,197.95
Total	132,042	$894,198,750	$6,898.34	28,648	$162,371,968	$5,667.83

PROPULSION—*concluded*

Arrangement	Combustion Chambers: No. Used	Combustion Chambers: Material	Combustion Chambers: Air Intake	Fuel System: No. of Pumps	Fuel System: No. of Emergency Pumps	Fuel System: Fuel Controls	Fuel System: Afterburning	Fuel System: Recommended Octane Rating of Fuel	Fuel System: No. Fuel Nozzles per Combustion Chamber	Ignition System: No. of Igniters	Ignition System: Type of Igniter	Lubrication: Sump Capacity (Pts.)	Lubrication: Max. Oil Consumption (Pts./Hr.)	Make of Component Parts: Starter	Make of Component Parts: Gens. 'tor	Make of Component Parts: Governor	Make of Component Parts: Vacuum Pump	Make of Component Parts: Fuel Pumps	Overall Dimensions: Length (In.): With Extension Pipe	Overall Dimensions: Length (In.): Without Extension Pipe	Overall Dimensions: Max. Diameter (In.)	Dry Weight: With Component Parts (Lb.)	Dry Weight: Without Component Parts (Lb.)	Line Number.
GREAT BRITAIN—*Continued*																								
Cy	7	NS	DF	1	N	M	N	K,JP-1	1	2	HE	25.0	1.0	Rot	N	.....	N	Luc	.....	98.0	38.0	1368	1227	1
Cy	7	NS	DF	1	N	M	N	K,JP-1	1	2	HE	25.0	1.0	Rot	N	.....	N	Luc	.....	98.0	38.0	1488	1376	2
Cy	7	NS	DF	1	N	M	N	K,JP-1	1	2	HE	25.0	1.0	Rot	N	.....	N	Luc	.....	98.0	38.0	1491	1376	3
Cn	10	NS	DF	1	N	M	N	K	1	2	HE	67.0	1.0	Rot	N	.....	N	Luc	.....	108.7	43.2	.....	2275	4
Cn	10	NS	DF	1	N	M	N	K	1	2	HE	67.0	1.0	Rot	N	.....	N	Luc	.....	108.7	43.2	.....	2275	5
Cn	10	NS	DF	1	N	M	N	K	1	2	HE	67.0	1.0	Rot	N	.....	N	Luc	.....	108.7	43.2	.....	2177	6
An	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	42.0	20.8	.....	.....	7
An	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	63.7	20.8	.....	.....	8
ITALY																								
An	1	NS	RF	1	.....	M	N	JP-1	16	2	Sp	.....	.4	Own	.....	AEA	.....	AEA	.....	34.8	22.5	212	182	9
An	1	NS	RF	1	.....	M	N	.....	16	2	Sp	.....	.8	AEA	.....	AEA	.....	AEA	.....	51.2	24.0	335	.....	10

FrT—Free turbine.
FT—Fir tree.
G—Gasoline.
Gov—Government furnished equipment.
H—Hydraulic.
HE—High energy.
HM—Hydro-mechanical.
HP—Hydro-pneumatic.
HS—Hamilton-Standard.
In—Integral.
JH—Jack and Heinta.
K—Kerosene.
Lab—Labinal.
Luc—Lucas.
M—Mechanical.
N—None.
Ne—Negligible.
NS—Nimonic sheet.
P—Planetary.
Par—Parker.
Pes—Pesco.
Ple—Plessey.
Pn—Pin.
Rad—Radial.
RF—Reverse flow.
RI—Rotary injector.
R-L—Rotax-Lucas.
Rot—Rotax.
Rtl—Rotol.
S—Single.
SA—Steel alloy.
SG—Spark and glow.
Sp—Spark.
SS—Stainless steel.
T—"T" slot.
TF—Through flow.
Th—Thompson Products.
TJ—Turbo-jet.
To—Torch.
TP—Turbo-prop.
TS—Turbo-shaft.
TuF—Turbo-fan.
Var—Various.
VF—Vertical flow.
Vic—Vickers.
W—Welded.
Ww—Woodward.
Y—Yes.

For Directory of the Gas Turbine Manufacturers listed above, see page 53

Aircraft, Gasoline and Diesel Engines

Value of Net New Orders—Aircraft Engines and Parts

(In Thousands of Dollars)

Industry Div., Bureau of the Census

Period	Type of Customer: U. S. Military	Type of Customer: All Other	Total
9 Mos. 1960	$958,000	$239,000	$1,197,000
9 Mos. 1959	626,000	189,000	815,000
Year			
1959	$ 786,000	$289,000	$1,075,000
1958	958,000	270,000	1,228,000
1957	1,200,000	231,000	1,431,000
1956	2,304,000	735,000	3,039,000
1955	1,652,000	413,000	2,065,000
1954	725,000	160,000	885,000
1953	1,142,000	144,000	1,286,000

Value of Backlog of Orders—Aircraft Engines and Parts

(In Thousands of Dollars)

Industry Div., Bureau of the Census

As of September 30	Type of Customer: U. S. Military	Type of Customer: All Other	Total
1960	$1,278,000	$322,000	$1,600,000
1959	1,151,000	437,000	1,588,000
1958	1,730,000	566,000	2,296,000
1957	2,475,000	642,000	3,117,000
1956	3,255,000	679,000	3,934,000
1955	2,484,000	196,000	2,680,000
1954	3,149,000	120,000	3,269,000
1953	5,033,000	140,000	5,173,000
1952	4,441,000	176,000	4,617,000

Production of Internal Combustion Engines (Except Outboard, Automotive and Aircraft) By Number of Cylinders for Gasoline and Diesel Engines

As reported by the Industry Division, Bureau of the Census

	1959		1958		1957	
	Number	% of Total	Number	% of Total	Number	% of Total
Gasoline						
1 cylinder	6,708,336	93.43	5,351,209	92.96	4,473,072	90.85
2 and 3 cylinders	101,682	1.42	74,593	1.30	83,210	1.69
4 cylinders	242,097	3.37	217,502	3.78	250,613	5.09
6 cylinders	103,910	1.45	101,649	1.77	107,007	2.17
8 and 12 cylinders	23,540	.33	10,926	.19	9,816	.20
Total—Gasoline Engines	7,179,565	100.00	5,755,879	100.00	4,923,718	100.00
Diesel						
1, 2, and 3 cylinders	41,231	22.92	24,486	18.59	21,235	16.73
4 cylinders	43,544	24.20	48,504	36.82	48,582	38.27
5, 6, and 7 cylinders	90,810	50.47	55,038	41.78	51,570	40.62
8 and 9 cylinders	954	.53	791	.60	1,136	.89
10 cylinders and over	3,370	1.88	2,917	2.21	4,438	3.49
Total—Diesel Engines	179,909	100.00	131,736	100.00	126,961	100.00

1961 .... U.S. AIRCRAFT ENGINES

RECIPROCATING TYPE

ENGINE MAKE AND MODEL	A. T. C. Number	GENERAL DATA											RATINGS								Propeller Drive Ratio (to —1)	Weight (Lb.)		Carbureter		Ignition System—Make	Starting		Installation Dimensions (Overall—Ins.)			Height above Engine Bed	Diameter Mounting Ring or Distance Between Bearers
		Arrangement	Cooling Medium	Number of Cylinders Bore and Stroke (In.)	Total Piston Displacement (Cu. In.)	Compression Ratio (to —1)	B.M.E.P. at Maximum Hp. (Lb. per Sq. In.)	Blower Ratio	Cylinder Material	No. of Valves per Cylinder: Intake	No. of Valves per Cylinder: Exhaust	Valve Arrangement	Maximum (Except Take-off): Horsepower	Maximum (Except Take-off): R. P. M.	Maximum (Except Take-off): At Sea Level or Altitude (Ft.)	Take-off: Horsepower	Take-off: R. P. M.	Cruising: Horsepower	Cruising: R. P. M.	Octane Rating of Fuel Required		Engine Dry—Without Hub or Starter	Per Maximum Hp. (Except Take-off)	Number Used and Make	Type		Make	Method	Length	Height or O. D.	Width		
Continental A-65-8F	205	Hor	Air	4-37/8x33/4	171.0	6.30	131	N	SA	1	1	IH	65	2300	SL	65	2300	.....	.....	80/87	D	170	2.62	1-MS	FL	Scin	N	.....	28.34	27.83	31.56	.....	(1)
A-65- 2F	205	Hor	Air	4-37/8x33/4	171.0	6.30	131	N	SA	1	1	IH	65	2300	SL	65	2300	.....	.....	80/87	D	174	2.68	1-MS	FL	Scin	DR	EM	31.26	28.72	31.56	.....	(1)
C-85-8F	233	Hor	Air	4-41/8x33/4	188.0	6.30	139	N	SA	1	1	IH	85	2575	SL	85	2575	.....	.....	80/87	D	178	2.07	1-MS	FL	Scin	N	.....	28.34	27.83	31.56	.....	(1)
C-85- 2F	233	Hor	Air	4-41/8x33/4	188.0	6.30	139	N	SA	1	1	IH	85	2575	SL	85	2575	.....	.....	80/87	D	180	2.12	1-MS	FL	Scin	DR	EM	31.26	28.72	31.56	.....	(1)
C-90-8F	252	Hor	Air	4-41/8x37/8	200.9	7.00	143	N	SA	1	1	IH	90	2475	SL	90	2475	.....	.....	80/87	D	184	2.04	1-MS	FL	Scin	N	.....	28.34	27.83	31.56	.....	(1)
C-90- 2F	252	Hor	Air	4-41/8x37/8	200.9	7.00	143	N	SA	1	1	IH	90	2475	SL	90	2475	.....	.....	80/87	D	188	2.09	1-MS	FL	Scin	DR	EM	31.26	28.72	31.56	.....	(1)
E- 85-8	246	Hor	Air	6-5x4	471.0	7.00	135	N	SA	1	1	IH	185	2300	SL	205	2600	.....	.....	80/87	D	352	2.90	1-Str	PI	Scin	DR	EM	46.66	22.30	33.41	.....	(2)
E-225-4	267	Hor	Air	6-5x4	471.0	7.00	146	N	SA	1	1	IH	225	2600	SL	225	2600	.....	.....	80/87	D	355	1.58	1-Ben	PI	Scin	Ecl	EM	46.66	22.30	33.41	.....	(2)
O-200-A	252	Hor	Air	4-41/8x37/8	200.9	7.00	143	N	SA	1	1	IH	100	2750	SL	100	2750	.....	.....	80/87	D	190	1.90	1-MS	FL	Scin	DR	EM	28.53	23.18	31.56	.....	(1)
O-300-A	253	Hor	Air	6-41/8x37/8	301.0	7.00	141	N	SA	1	1	IH	145	2700	SL	145	2700	.....	.....	80/87	D	268	1.85	1-MS	FL	Scin	DR	EM	35.38	23.25	31.56	.....	(2)
GO-300-A	258	Hor	Air	6-41/8x37/8	301.0	7.30	144	N	SA	1	1	IH	175	3200	SL	175	3200	.....	.....	80/87	.7500	314	1.79	1-MS	FL	Scin	DR	EM	39.12	27.05	31.56	.....	(2)
O-470-13A	269	Hor	Air	6-5x4	471.0	7.00	146	N	SA	1	1	IH	225	2600	SL	225	2600	.....	.....	80/87	D	415	1.84	1-Ben	PI	Scin	Ecl	EM	40.96	26.44	33.62	.....	.....
O-470-'5	269	Hor	Air	6-5x4	471.0	7.00	140	N	SA	1	1	IH	190	2300	SL	213	2600	.....	.....	80/87	D	405	2.13	1-Str	FL	Scin	DR	EM	44.75	26.61	33.41	.....	(2)
O-470-H[11]	273	Hor	Air	6-5x4	471.0	8.00	156	N	SA	1	1	IH	240	2600	SL	240	2600	.....	.....	91/96	D	471	1.96	1-Ben	PI	Scin	DR	EM	67.65	.....	33.58	.....	(2)
O-470-J	273	Hor	Air	6-5x4	471.0	7.00	165	N	SA	1	1	IH	225	2550	SL	225	2550	.....	.....	80/87	D	378	1.68	1-MS	FL	Scin	DR	EM	36.03	27.75	33.58	.....	(2)
O-470-K & L	273	Hor	Air	6-5x4	471.0	7.00	149	N	SA	1	1	IH	230	2600	SL	230	2600	.....	.....	80/87	D	404	1.76	1-MS	FL	Scin	DR	EM	36.03	27.75	33.58	.....	(2)
O-470-M	273	Hor	Air	6-5x4	471.0	8.00	156	N	SA	1	1	IH	240	2600	SL	240	2600	.....	.....	91/96	D	410	1.71	1-MS	FL	Scin	DR	EM	43.31	19.62	33.56	.....	(2)
10-470-C	273	Hor	Air	6-5x4	471.0	8.00	162	N	SA	1	1	IH	250	2600	SL	250	2600	.....	.....	91/96	D	432	1.73	1-CMC	Inj	Scin	DR	EM	37.56	26.25	33.58	.....	(2)
10-470-D	3E1	Hor	Air	6-5x4	471.0	8.60	167	N	SA	1	1	IH	260	2625	SL	260	2625	.....	.....	100/130	D	430	1.65	1-CMC	Inj	Scin	DR	EM	43.31	19.75	33.56	.....	(2)
10-470-J	3E1	Hor	Air	6-5x4	471.0	7.00	146	N	SA	1	1	IH	225	2600	SL	225	2600	168	2450	80/87	D	402	1.79	1-CMC	PI	Scin	DR	EM	37.93	26.81	33.58	.....	(2)
FSO-526-A[5]	292	Hor	Air[4]	6-5 1/2x41/4	526.0	6.00	129	10.04	SA	1	1	IH	270	3000	7900	270	3200	.....	.....	91/96	D	553	2.05	1-Ben	PI	Scin	DR	EM	50.33	28.54	34.64	.....	(2)
GSO-526-A	303	Hor	Air	6-5 1/2x41/4	526.0	6.00	151	12.88	SA	1	1	IH	300	3000	14500	340	3 00	.....	.....	91/96	.6880	556	1.85	1-Ben	PI	Scin	DR	EM	52.28	23.96	34.68	.....	(2)
TS- 0-470-B[12]	3E3	Hor	Air	6-5x4	471.0	7.50	168	.....	SA	1	1	IH	260	2600	16000	260	2600	195	2450	100/130	D	464	1.79	1-CMC	PI	Scin	DR	EM	42.82	20.25	33.58	.....	(2)
Franklin 4A4-'00-B3	239	Hor	Air	4-4 1/2x31/2	225.0	7.00	136	N	AC	1	1	IH	100	2600	SL	.....	.....	75	2370	80	D	2'4	2.14	1-MS	FL	Eis	AL	EM	30.68	20.89	30.81	12.03	.....
6A4-'50-B3	238	Hor	Air	6-4 1/2x31/2	335.0	7.00	136	N	AC	1	1	IH	150	2600	SL	.....	.....	113	2370	80	D	291	1.94	1-MS	FL	Eis	DR	EM	37.37	22.59	30.81	13.03	.....
6A4-'65-B3	238	Hor	Air	6-4 1/2x31/2	335.0	7.00	139	N	AC	1	1	IH	165	2800	SL	.....	.....	124	2550	80	D	307	1.86	1-MS	PI	Scin	DR	EM	37.37	25.31	30.81	13.03	.....
6V4-200-C32, C33	244	Ver	Air	6-4 1/2x31/2	335.0	8.50	152	N	AC	1	1	IH	200	3100	SL	.....	.....	.....	.....	91	D	306	1.53	1-BM	P-FL	Scin	DR	EM	26.81	36.00	30.81	.....	.....
6AG4- 90-B 3	238	Hor	Air	6-4 1/2x31/2	335.0	7.60	141	N	AC	1	1	IH	190	3100	SL	.....	.....	.....	.....	80	.6320	324	1.11	1-BM	P-FL	Scin	DR	EM	40.59	26.12	30.81	.....	.....
6V-335-A, B	244	Ver	Air	6-4 1/2x31/2	335.0	8.50	157	N	AC	1	1	IH	210	3100	SL	.....	.....	.....	.....	91	.....	306	1.46	1-MS	FL	Scin	DR	EM	26.81	36.00	30.81	.....	.....
6A-335-A	244	Hor	Air	6-4 1/2x31/2	335.0	8.50	157	N	AC	1	1	IH	210	3100	SL	.....	.....	.....	.....	91	.....	307	1.46	1-MS	FL	Scin	DR	EM	40.59	26.12	30.81	.....	.....
6VS-335[12]	1E2	Ver	Air	6-4 1/2x31/2	335.0	7.00	172	.....	AC	1	1	IH	225	3100	SL[13]	240	3200	.....	.....	100/130	.....	365	1.62	1-MS	FL	Scin	.....	EM	39.75	38.00	31.56	.....	.....
Herrmann X-375	293	Bar	Liq	12-3 1/4x33/4	373.0	8.00	112	.....	Alu	1	1	OH	175	1800	.....	250	1900	175	1800	80/87	D	310	1.84	1-Str	FL	S-A	DR	EM	50.50	18.00	21.50	12.00	10.00
Lycoming O-235-C[1]B	223	Hor	Air	4-4 3/4x37/8	233.3	6.75	141	N	SA	1	1	IH	108	2600	SL	115	2800	81	2360	80	D	207	1.92	1-MS	FL	Scin	DR	EM	29.81	22.40	32.00	.....	.....
O-290-D2C[3]	229	Hor	Air	4-4 1/2x37/8	289.0	7.00	137	N	SA	1	1	IH	135	2600	SL	140	2800	100	2350	80/87	D	238	1.75	1-MS	FL	Scin	DR	EM	29.81	22.68	32.24	.....	(1)
O-320-A2C[3]	274	Hor	Air	4-5 1/2x37/8	319.8	7.00	138	N	SA	1	1	IH	150	2700	SL	150	2700	110	2450	80/87	D	244	1.62	1-MS	FL	Scin	DR	EM	29.81	22.99	32.24	.....	(1)
O-320-B3C	274	Hor	Air	4-5 1/2x37/8	319.8	8.50	147	N	SA	1	1	IH	160	2700	SL	160	2700	120	2450	91/96	D	250	1.55	1-MS	FL	Scin	DR	EM	29.81	22.99	32.24	.....	(1)
O-340-A'B	277	Hor	Air	4-5 1/2x38/8	340.4	8.50	146	N	SA	1	1	IH	170	2700	SL	170	2700	125	2450	91/96	D	250	1.47	1-MS	FL	Scin	DR	EM	29.81	24.55	32.55	.....	(1)
O-360-A'D	286	Hor	Air	4-5 1/2x48/8	361.0	8.50	148	N	SA	1	1	IH	180	2700	SL	180	2700	135	2450	91/96	D	257	1.41	1-BM	P-FL	Scin	DR	EM	29.81	24.59	33.37	.....	(1)
O-360-C2D[3]	286	Hor	Air	4-5 1/2x48/8	361.0	8.50	146	N	SA	1	1	IH	180	2700	SL	180	2700	144	2700	91/96	D	261	1.45	1-Ben	PI	Scin	DR	EM	30.67	19.68	33.37	.....	(1)
VO-360-A'B[5]	1E1	Ver	Air	4-5 1/2x48/8	361.0	8.50	136	N	SA	1	1	IH	180	2900	SL	180	2900	145	2900	91/96	D	270	1.50	1-MS	FL	Scin	DR	EM	30.00	21.92	33.37	.....	(1)
VO-435-A'E[5]	279	Ver	Air	6-4 7/8x37/8	434.0	7.30	143	N	NA	1	1	IH	250	3200	SL	260	3400	200	3200	80/87	D	392	1.56	1-MS	FL-P	Scin	Opt	EH	34.73	25.19	33.58	.....	.....
GO-435-C2B2-6	228	Hor	Air	6-4 7/8x37/8	434.0	7.30	146	N	NA	1	1	IH	240	3000	SL	260	3400	180	2750	80/87	.6420	430	1.79	1-BM	P-FL	Scin	Opt	EM	38.64	28.02	33.12	.....	(2)
GO-480-B E-6	275	Hor	Air	6-5 1/2x37/8	479.7	7.30	143	N	NA	1	1	IH	260	3000	SL	270	3400	195	2750	80/87	.6420	432	1.68	1-Str	PI	Scin	Opt	EM	39.84	28.02	33.12	.....	(2)
GO-480-B D	275	Hor	Air	6-5 1/2x37/8	479.7	7.30	143	N	NA	1	1	IH	260	3000	SL	270	3400	195	2750	80/87	.6420	432	1.66	1-Str	PI	Scin	Opt	EM	38.64	28.02	33.12	.....	(2)
GO-480-G G6	275	Hor	Air	6-5 1/2x37/8	479.7	8.70	143	N	SA	1	1	IH	280	3000	SL	295	3400	210	2750	100/130	.6420	439	1.57	1-Ben	PI	Scin	Opt	EM	39.84	28.02	33.12	.....	(2)
GO-480-G F6	275	Hor	Air	6-5 1/2x37/8	479.7	8.70	154	N	SA	1	1	IH	280	3000	SL	295	3400	210	2750	100/130	.6420	464	1.64	1-Str	PI	Scin	Opt	EM	39.84	28.02	33.12	.....	(2)
GO-480-G2F6	275	Hor	Air	6-5 1/2x37/8	479.7	8.70	152	N	NA	1	1	IH	285	3 00	SL	295	3400	210	2750	100/130	.6420	442	1.55	1-Str	PI	Scin	Opt	EM	41.79	28.02	33.12	.....	(2)
GSO-480-B'A6	284	Hor	Air	6-5 1/2x37/8	479.7	7.30	154	11.27	SA	1	1	IH	320	3200	8000	340	3400	240	2750	100/130	.6420	498	1.56	1-Str	PI	Scin	Opt	EM	49.31	33.08	33.12	.....	(2)
GSO-480-B B6	284	Hor	Air	6-5 1/2x37/8	479.7	7.30	154	11.27	SA	1	1	IH	320	3200	8000	340	3400	240	2750	100/130	.6420	500	1.56	1-Str	PI	Scin	Opt	EM	46.22	33.26	33.12	.....	(2)
GSO-480-B'C6	284	Hor	Air	6-5 1/2x37/8	479.7	7.30	154	11.27	SA	1	1	IH	320	3200	8000	340	3400	240	2750	100/130	.6420	497	1.55	1-Str	PI	Scin	Opt	EM	52.18	22.56	33.12	.....	(2)
GSO-480-B2D6	284	Hor	Air	6-5 1/2x37/8	479.7	7.30	154	11.27	SA	1	1	IH	320	3200	8000	340	3400	240	2750	100/130	.6420	498	1.56	1-Str	PI	Scin	.....	EM	47.06	22.56	33.12	.....	(2)
IGSO-480-A B6	284	Hor	Air	6-5 1/2x37/8	479.7	7.30	165	11.27	SA	1	1	IH	320	3200	11000	340	3400	240	2750	100/130	.6420	496	1.55	1-Sim	Inj	Scin	Opt	EM	47.56	23.29	33.12	.....	(2)
O-540-A'D5	295	Hor	Air	6-5 1/2x48/8	541.5	8.50	139	N	SA	1	1	IH	260	2700	SL	265	2800	195	2450	91/96	D	368	1.42	1-MS	FL	Scin	DR	EM	38.42	24.56	33.37	.....	(1)
O-540-F1B5[3]	295	Hor	Air	6-5 1/2x48/8	541.5	8.50	136	N	SA	1	1	IH	235	2800	4000	260	2800	175	2600	91/96	D	369	1.57	1-MS	FL	Scin	.....	EM	38.42	24.56	33.37	.....	(2)
VO-540-B1B[5]	304	Ver	Air	6-5 1/2x48/8	541.5	7.30	140	N	SA	1	1	IH	305	3200	SL	305	3200	245	3200	80/87	D	429	1.41	1-MS	FL	Scin	.....	EM	34.73	24.57	34.70	.....	.....
VO-540-B1C[5]	304	Ver	Air	6-5 1/2x48/8	541.5	7.30	140	N	SA	1	1	IH	305	3200	SL	305	3200	245	3200	80/87	D	430	1.41	1-MS	FL	Scin	.....	EM	34.73	24.57	34.70	.....	.....

	IMO-360-B1B[6]	....	Hor	Air	4-5½x4½	361.0	6.70	149	N	SA	1	1	IH	230	3400	SL	230	3400	....	....	100/130	D	274	1.19	1-Sim	Inj	Scin	....	HC	32.68	17.49	34.25	....	(1)
	O-320-B2C	274	Hor	Air	4-5½x3⅞	3.9.1	6.50	138	N	SA	1	1	IH	160	2700	SL	160	2700	120	2450	91/96	D	240	1.50	1-MS	FL	Scin	DR	EM	29.81	22.99	32.24	....	(1)
	O-360-A1C	286	Hor	Air	4-5½x4½	361.0	6.50	146	N	SA	1	1	IH	180	2700	SL	180	2700	135	2450	91/96	D	259	1.44	1-MS	FL	Scin	DR	EM	30.67	19.66	33.37	....	(1)
	IO-360-B1A	1E10	Hor	Air	4-5½x4½	361.0	6.50	147	N	SA	1	1	IH	180	2700	SL	180	2700	135	2450	91/96	D	261	1.45	1-Sim	Inj	Scin	DR	EM	32.81	22.47	33.37	....	(1)
	O-435-4[3]	226	Hor	Air	6-4⅞x3⅞	434.0	7.30	145	N	NA	1	1	IH	245	3200	SL	255	3400	200	3200	80/87	D	405	1.59	1-MS	FL	Scin	DR	EM	38.53	26.23	33.12	....	(2)
	O-435-6A[3]	279	Hor	Air	6-4⅞x3⅞	434.0	7.30	145	N	NA	1	1	IH	245	3200	SL	255	3400	200	3200	80/87	D	405	1.59	1-MS	FL	Scin	DR	EM	34.73	25.19	34.73	....	(2)
	O-435-23B[3]	279	Hor	Air	6-4⅞x3⅞	434.0	7.30	145	N	NA	1	1	IH	245	3200	SL	258	3400	200	3200	80/87	D	403	1.65	1-MS	FL	Scin	DR	EM	34.73	25.19	33.58	....	(2)
	VO-540-B1D[5]	304	Ver	Air	6-5½x4½	541.5	7.30	140	N	SA	1	1	IH	305	3200	1000	305	3200	240	3200	80/87	D	430	1.41	1-MS	FL	Scin	....	....	34.73	24.58	34.70	....	....
	VO-540-C1A[5]	304	Ver	Air	6-5½x4½	541.5	8.70	140	N	SA	1	1	IH	305	3200	3000	305	3200	240	3200	100/130	D	430	1.41	1-MS	FL	Scin	....	....	34.73	24.58	34.70	....	....
	IO-540-B1A5	1E4	Hor	Air	6-5½x4½	541.5	8.70	....	N	SA	1	1	IH	290	2574	SL	290	2574	220	2350	100/130	D	422	1.46	1-Sim	Inj	Scin	DR	EM	38.62	19.60	34.25	....	....
Nelson	H-63-C	4E1	Hor	Air	4-2½x2¾	63.0	8.00	68	N	Alu	....	....	Ro	43	4000	SL	43	4000	43	4000	80/87	D	76[13]	1.77	1-...	Dia	....	AL	EM	20.00	14.80	23.80	....	(15)
	H-63-CP	4E1	Hor	Air	4-2½x2¾	63.0	8.00	71	N	Alu	....	....	Ro	48	4400	SL	45	4400	45	4000	80/87	D	68[13]	1.42	1-...	Dia	....	....	EM	20.00	14.80	23.80	....	(15)
Pratt & Whitney	CB-16	264	Rad	Air	18-5¾x6	2604.0	6.70	196	....	SD	1	1	IH	1800	2600	8500	2050[7]	2700[8]	1800	2600	100/130	.4500	2390	1.33	1-Str	PI	Scin	....	....	81.40	52.80	....	....	....
		....	(2-Sp	eed B	lower Engin	e)	....	....	174	....	....	....	....	1600	....	16000	1850[9]	2600[9]	1700	....	....	....	....	1.49	....	....	....	....	....	....	....	....	....	....
	CB-17	264	Rad	Air	18-5¾x6	2804.0	6.70	196	....	SD	1	1	IH	1800	2600	8500	2200[10]	2800	1900	2600	108/135	.4500	2390	1.33	1-Str	PI	Scin	....	....	81.40	52.80	....	....	....
		....	(2-Sp	eed B	lower Engin	e)	....	....	185	....	....	....	....	1700	....	14500	1900[9]	2600[9]	1750	....	....	....	....	1.41	....	....	....	....	....	....	....	....	....	....
Wright	990C7BA1	289	Rad	Air	7-6¼x6⅛	1301.0	6.20	178	7.21	SA	1	1	IH	700	2400	7300	800	2600	490	2200	91/96	D	1070	1.53	1-Str	PI	Bos	....	EM	49.68	50.45	....	....	32.75
	977C9HD1	243	Rad	Air	9-6¼x6⅞	1823.0	6.80	222	7.21	SA	1	1	IH	1275	2500	2600	1425	2700	890	2500	100/130	D	1349	1.06	1-Str	PI	Bos	....	EM	48.50	54.95	....	....	32.75
		....	(High	Blow	er Ratio)	....	....	....	169	10.14	....	....	....	975	2500	18300	....	....	....	....	....	....	....	1.38	....	....	....	....	....	....	....	....	....	....
	977C9HD2	243	Rad	Air	9-6¼x6⅞	1823.0	6.80	222	7.21	SA	1	1	IH	1275	2500	2600	1425	2700	890	2500	100/130	D	1349	1.06	1-Str	PI	Bos	....	EM	48.50	54.95	....	....	32.75
		....	(High	Blow	er Ratio)	....	....	....	195	8.69	....	....	....	1125	2500	11600	....	....	....	....	....	....	....	1.20	....	....	....	....	....	....	....	....	....	....
	977C9HD3	243	Rad	Air	9-6¼x6⅞	1823.0	6.80	222	7.21	SA	1	1	IH	1275	2500	2600	1425	2700	890	2500	100/130	D	1348	1.06	1-Str	PI	Bos	....	EM	48.50	54.95	....	....	32.75
	982C9HE2	259	Rad	Air	9-6¼x6⅞	1823.0	6.80	222	7.21	SA	1	1	IH	1275	2500	3400	1475	2800	890	2400	100/130	.5625	1455	1.14	1-Str	PI	Scin	....	EM	50.07	55.75	....	....	32.75
	989C9HE1	259	Rad	Air	9-6¼x6⅞	1823.0	6.80	222	7.21	SA	1	1	IH	1275	2500	3500	1525	2800	890	2400	115/145	D	1398	1.09	1-Str	PI	Scin	....	EM	52.00	55.75	....	....	32.75
	989C9HE2	259	Rad	Air	9-6¼x6⅞	1823.0	6.80	222	7.21	SA	1	1	IH	1275	2500	3500	1525	2800	890	2400	115/145	D	1406	1.10	1-Str	PI	Scin	....	EM	52.00	55.75	....	....	32.75
	998C9HE1	259	Rad	Air	9-6¼x6⅞	1823.0	6.80	222	7.21	SA	1	1	IH	1275	2500	3500	1525	2800	890	2400	115/145	D	1401	1.10	1-Str	PI	Scin	....	EM	52.00	55.75	....	....	32.75
	998C9HE2	259	Rad	Air	9-6¼x6⅞	1823.0	6.80	222	7.21	SA	1	1	IH	1275	2500	3500	1525	2800	890	2400	115/145	D	1409	1.10	1-Str	PI	Scin	....	EM	52.00	55.75	....	....	32.75
	988TC18EA6	287	Rad	Air	18-6¼x6⅛	3350.0	6.70	260	6.46	SA	1	1	IH	2920	2650	4800	3400	2900	1975	2500	115/145	.4375	3675	1.26	1-Str	Inj	Scin	....	EM	89.53	56.59	....	....	41.80
		....	(High	Blow	er Ratio)	....	....	....	222	8.67	....	....	....	2450	2600	16400	....	....	....	....	....	....	....	1.50	....	....	....	....	....	....	....	....	....	....
	R-1820-82A	....	Rad	Air	9-6¼x6⅞	1823.0	6.80	222	7.21	SA	1	1	IH	1275	2500	3500	1525	2800	700	2000	115/145	.5625	1469	1.15	1-Str	PI	Scin	....	EM	50.10	55.74	....	....	32.75
	R-1820-84A	....	Rad	Air	9-6¼x6⅞	1823.0	6.80	222	7.21	SA	1	1	IH	1275	2500	3500	1525	2800	700	2000	115/145	D	1419	1.11	1-Str	PI	Scin	....	EM	52.00	55.74	....	....	32.75
	R-1820-84B	....	Rad	Air	9-6¼x6⅞	1823.0	6.80	222	7.21	SA	1	1	IH	1275	2500	3500	1525	2800	700	2000	115/145	D	1427	1.12	1-Str	PI	Scin	....	EM	52.00	55.74	....	....	32.75
	R-1820-90A	....	Rad	Air	9-6¼x6⅞	1823.0	6.80	222	7.21	SA	1	1	IH	1275	2500	3500	1525	2800	700	2000	115/145	D	1430	1.12	1-Str	PI	Scin	....	EM	52.00	55.74	....	....	32.75
	R-3350-32W	....	Rad	Air	18-6¼x6⅛	3350.0	6.70	259	6.46	SA	1	1	IH	2850	2600	4100	3700[9]	2900	1560	2200	115/145	.4375	3560	1.25	1-CE	Inj	Scin	....	EM	91.80	56.59	....	....	41.80
		....	(High	Blow	er Ratio)	....	....	....	222	8.67	....	....	....	2450	2600	18000	....	....	....	....	....	....	....	1.45	....	....	....	....	....	....	....	....	....	....
	R-3350-32WA	....	Rad	Air	18-6¼x6⅛	3350.0	6.70	259	6.46	SA	1	1	IH	2850	2600	4000	3700[9]	2900	1700	2300	115/145	.4375	3560	1.25	1-CE	Inj	Scin	....	EM	91.80	56.59	....	....	41.80
		....	(High	Blow	er Ratio)	....	....	....	222	8.67	....	....	....	2450	2600	17800	....	....	....	....	....	....	....	1.45	....	....	....	....	....	....	....	....	....	....

ABBREVIATIONS

[1]—A rear type mounting is provided by four mounts integral with the crankcase.
[2]—A longitudinal type mounting is provided by four mounting bosses integral with the crankcase.
[3]—Certificated for helicopter application.
[4]—Cooled by fan.
[5]—Helicopter engine with vertical crankshaft.
[6]—Drone engine for unmanned aircraft.
[7]—2400 with water injection.
[8]—2800 with water injection.
[9]—With water injection.
[10]—2500 with water injection.
[11]—Pusher-type engine with extended propeller shaft.
[12]—Turbo supercharged engine.
[13]—To 15,000 feet.
[15]—Mounting pads are located on crankcase casting.
AC—Aluminum with cast iron sleeves.
AL—Electric Auto-Lite Co.
Alu—Aluminum.
Bar—Barrel.
Ben—Bendix Aviation Corp.
BM—Bendix or Marvel-Schebler.
Bos—American Bosch Corp.
CE—Chandler Evans.
CMC—Continental Motors Corp.
D—Direct Dia—Diaphragm.
DR—Delco-Remy Div.
Ecl—Eclipse Pioneer Div.
Eis—Eiseman Corp.
EM—Electric motor. FL—Float.
FL-P—Float, pressure compensated.
HC—Hand crank.
Hor—Horizontally opposed.
IH—In head with push rods and rocker arms.
Inj—Injectors. Liq—Liquid.
MS—Marvel-Schebler Carburetor Div.
N—None.
NA—Nickel iron with aluminum head.
OH—Overhead camshaft.
Opt—Optional.
P-FL—Pressure injection or float.
PI—Pressure injection.
Rad—Radial.
Ro—Rotary valve.
SA—Steel with aluminum head.
S-A—Scintilla and Auto-Lite.
Scin—Scintilla Magneto Div.
SD—Steel and Dural.
Sim—Simmonds Aerocessories, Inc.
SL—Sea level.
Str—Stromberg-Flmira Div.
Ver—Vertically opposed.

For Directory of the Engine Manufacturers listed above, see Page 53

Value of Shipments of Aircraft Propellers and Other Products of Their Plants

Based on data from Industry Division, Bureau of the Census

	Value of All Products	Total	Aircraft Propellers and Parts						Other Products and Services	Shipments of Propellers for Civil Aircraft
			For Military Aircraft			For Civilian Aircraft				
			Total	Propellers	Parts	Total	Propellers	Parts		
1960	$162,564,000	$83,677,000	$62,998,000	(d)	(d)	$20,679,000	$12,035,000	$8,644,000	$78,887,000	13,677
1959	170,212,000	89,951,000	58,171,000	(d)	(d)	31,780,000	19,762,000	12,018,000	80,261,000	15,045
1958	230,120,000	155,125,000	121,753,000	(d)	(d)	33,372,000	$22,456,000	10,913,000	74,995,000	14,114
1957	250,185,000	162,325,000	120,607,000	$61,589,000	$59,018,000	41,718,000	23,919,000	17,799,000	87,860,000	16,014
1956	185,798,000	118,988,000	87,211,000	40,059,000	47,152,000	31,777,000	17,723,000	14,054,000	66,810,000	12,957
1955	160,531,000	120,034,000	101,907,000	51,127,000	50,780,000	18,127,000	9,313,000	8,814,000	40,497,000	12,611
1954	190,579,000	157,558,000	139,066,000	65,909,000	73,157,000	18,492,000	9,645,000	8,847,000	33,020,000	9,282
1953	213,426,000	188,029,000	168,845,000	100,043,000	68,802,000	19,184,000	10,659,000	8,525,000	25,396,000	9,941
1952	155,348,000	139,344,000	119,746,000	(d)	(d)	19,598,000	10,951,000	8,647,000	16,004,000	10,951
1951	113,104,000	100,089,000	81,195,000	(d)	(d)	18,894,000	9,681,000	9,033,000	13,015,000	10,504

(d)—Not shown separately to avoid disclosing figures of individual companies.

THE PRECISION LINE

Fellows

3" FINE-PITCH Gear Shaper

Max. P.D. — 3" ext., 2" int.
Max. D.P. — 40 steel, 30 brass
Max. Face width — 3/4"
Max. Strokes Per Min. — 2000

P400 Fellows-Pfauter Hobbing Machine

Max. Work Dia. — 16"
Max. D.P. — 4
Max. Face width — 11" at 16" dia.
Hob R.P.M. — 80-500

No. 4GS Gear Shaper

Max. P.D. — 6" ext.
Max. D.P. — 5/7 spur, 6 helical
Max. Face width — 2"
Max. Strokes Per Min. — 635

P630 Fellows-Pfauter Hobbing Machine

Max. Work Dia. — 25"
Max. D.P. — 3
Max. Face width — 16¼" at 25" dia.
Hob R.P.M. — 62-390

7A-TYPE Gear Shaper

Max. P.D. — 7" ext., 6" int.
Max. D.P. — 5/7 spur, 6 helical
Max. Face width — 2" ext., 1½" int.
Max. Strokes Per Min. — 450

No. 4 FINE-PITCH Gear Shaver

External spur & helical
Max. P.D. — 4"
Max. D.P. — 20
Max. Face width — 1"
Max. Spread of Centers — 12"

6A-TYPE Gear Shaper

Max. P.D. — 18" ext. and int.
Max. D.P. — 3/4 spur, 5/7 helical
Max. Face width — 5" ext., 3" int.
Max. Strokes Per Min. — 300

No. 8 "FULL-TOOL" Gear Shaver

Ext. & int. spur & helical
Max. P.D. — 8"
Max. D.P. — 4
Max. Face width — 2½"
Max. Spread of Centers — depends on work-holding fixture

No. 12 Gear Shaper

Max. P.D. — 12" ext. and int.
Max. D.P. — 3/4 spur, 5/7 helical
Max. Face width — 4"
Max. Strokes Per Min. — 535

No. 12 Gear Shaver

External spur & helical
Max. P.D. — 12"
Max. D.P. — 6
Max. Face width — 3"
Max. Spread of Centers — 12⅞"

36-TYPE Gear Shaper

Max. P.D. — 36" ext. and int.
Max. D.P. — 3 spur, 4/5 helical
Max. Face width — 6"
Max. Strokes Per Min. — 300

No. 12 Fellows-Reishauer Gear Grinder

External spur & helical
Max. Face width (spur) — 6¾"
Max. Face width (helical) — depends on pitch and helix angle
Pressure Angles — 14½° to 30°
Pitch Ranges — 6 to 48 D.P. or 20 to 120 D.P.

120-INCH Gear Shaper

Max. P.D. — 120" ext. and int.
Max. D.P. — 2 spur, 4 helical
Max. Face width — 8"
Max. Strokes Per Min. — 148

No. 4 FINE-PITCH Red Liner

For composite check of external and internal spur and helical gears. Max. P.D. — 4"

Gear Production Equipment

No. 8M
Red Liner

For composite check of external and internal spur and helical gears. Max. P.D. depends upon design of gear.

No. 12M
Involute Measuring

For checking involute profiles on external and internal spur and helical gears.
Max. P.D. — 12″.
No. 24M has 24″ capacity.

No. 20M
Red Liner

For composite check of external and internal spur and helical gears.
Max. P.D. — 18″.

No. 12H
Lead Measuring

Continuous-originating type lead measuring of external and internal helical gears.
Max. P.D. — 12″
No. 24H has 24″ capacity.

Right from the blank to the finished external or internal spur or helical gear, Fellows has the complete line of gear production and inspection equipment to meet all your requirements. And Fellows has had *sixty years* of specialized experience in solving gear production problems!

The Fellows-Appel Cold Forming Machine cold works ferrous or non-ferrous metal tubes to the shape determined by an internal mandrel. Max. O.D. is 4 inches and max. length of finished work is 20 feet.

The Fellows line of Injection Molding Machines offers the ultimate in low-cost, high production of plastic parts up to 20 oz.

Your nearest Fellows branch office will be pleased to give complete information on any Fellows equipment.

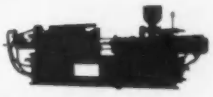
THE FELLOWS GEAR SHAPER COMPANY
78 River Street, Springfield, Vermont, U.S.A.
Branch Offices: 1048 North Woodward Ave., Royal Oak, Mich.
150 West Pleasant Ave., Maywood, N. J.
5835 West North Avenue, Chicago 39
6214 West Manchester Ave., Los Angeles 45

Fellows

Injection Molding Machines

MODEL
3-125

Fully automatic plastics injection molding at 600-840 cycles per hour (dry run).
Capacity — 3 to 4½ oz. — 45 lbs./hr.
Max. mold size, 12″ x 17″.

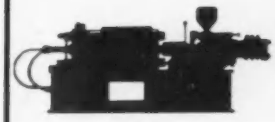


MODEL
6-10-225

Fully automatic plastics injection molding at 725-900 cycles per hour (dry run).
Capacity — 6 to 10 oz. — 100 lbs./hr.
Max. mold size, 15″ x 25″.

MODEL
6-200

Fully automatic plastics injection molding at 490-650 cycles per hour (dry run).
Capacity — 6 to 9 oz. — 75 lbs./hr.
Max. mold size, 15″ x 21″.



MODEL
12-350

Fully automatic plastics injection molding at 600-800 cycles per hour (dry run).
Capacity — 12 to 20 oz. — 150 lbs./hr.
Max. mold size, 20″ x 33″.

Circle 166 on Inquiry Card for more data

NYLON PRESSURE TUBING

for Hydraulic-Pneumatic Service

CHEMISEAL Nylon Pressure Tubing can be flexed, twisted or bent into all contours, offers wide design "leeway."

Flex it . . . twist it . . . bend it! In fact, shape Garlock CHEMISEAL Nylon Pressure Tubing into practically any contour you need. Think what this means in design freedom and versatility.

For hydraulic-pneumatic systems, pressure lubrication lines, oil and fuel lines, vacuum system connections. Garlock CHEMISEAL Nylon Pressure Tubing is a superior design material. It is unaffected by oils, alkalies, hydraulic fluids, and many solvents that tend to corrode metal. It resists vibrational fatigue, abrasion, impact . . . withstands temperatures from −60°F. to +180°F. (can be heat stabilized for 300°F.) . . . available in 1000 and 2500 psi. grades, conforming to J.I.C. specifications. Diameters from 1/8" O.D. up to largest size commercially made, depending on customer needs.

To guarantee you best performance possible, CHEMISEAL Nylon Pressure Tubing is subjected to severe tests. For example, the Anvil Impact Test simulates the mechanical abuse that may accidentally occur in service. CHEMISEAL Nylon Pressure Tubing is placed on a flat steel anvil. A 16-pound hammer with a striking head of 6" drops freely onto the tubing from a height of 24". The Roll Bend Test assures freedom from defects which cause flex fatigue. Tubing is passed around and between two grooved rollers to form an "S" shape. Space between rollers is twice the diameter of the tubing. Tubing is then moved back and forth at a rate of at least 125 f.p.m.

In cost, too, Garlock CHEMISEAL Nylon Pressure Tubing has the advantage. Seamless copper and extruded aluminum cost approximately four times as much, while welded and seamless stainless steel costs 29 to 37 times more, respectively. Also, the cost of couplings and installation labor should be considered—CHEMISEAL Nylon Pressure Tubing needs no intermediate couplings or fittings . . . is simple to install. You save on first cost, fittings, and labor.

Discover how you can use CHEMISEAL Nylon Pressure Tubing. Call your local Garlock representative at the nearest of the 26 Garlock sales offices and warehouses throughout the U.S. and Canada. Or, write for Catalog AD-177. Garlock Inc., Palmyra, N. Y.

GARLOCK

Canadian Div.: Garlock of Canada Ltd.

Plastics Div.: United States Gasket Company

Order from the Garlock 2,000 . . . two thousand different styles of Packings, Gaskets, Seals, Molded and Extruded Rubber, Plastic Products

Circle 167 on Inquiry Card for more data

NEW FRAM *WEAR-GUARD* FILTERS PROVED GREATEST ADVANCE IN ENGINE PROTECTION SINCE DETERGENT OILS!

Tests show new *Wear-Guard* construction traps up to 40% more dirt than any other filter tested! It guards engines against unnecessary wear... stops fuel waste!

The secret is in the construction! Thousands of tiny filter pockets are packed inside new Fram *Wear-Guard* Filters with new pleated fiber. Tests—including radioactive tracer techniques—prove Fram Oil and Air Filters with *Wear-Guard* will keep car engines safer than any other filters tested.

No wonder more car manufacturers equip their 1961 cars with filters made by Fram than any other filter!

FRAM CORPORATION, PROVIDENCE 16, R.I.

YOUR FIRST LINE OF ENGINE PROTECTION

FRAM
OIL AIR FUEL WATER
FILTERS

Morse HY-VO® shatters roller-chain speed barrier!

PROVES IDEAL FOR GAS TURBINE APPLICATIONS

By far surpassing the speed limitations of roller chain, Morse Hy-Vo extends the advantages of low-cost chain drives to gas turbine applications. Running at speeds to 13,250 fpm., Hy-Vo offers the efficiency of high-speed, expensive gearing at lower cost. The designer can use the flexibility of chain in his power train without the disadvantages of gears.

Hy-Vo can handle gas turbines up to 1800 hp in main or auxiliary drives. Power is transmitted as smoothly and quietly as gears with superior load distribution. Compensating joint design fully eliminates chordal action normally encountered at very high chain speeds. Fill yourself in on the complete Hy-Vo story today and be ready for tomorrow. Write: Morse Chain Co., Dept. 36-31, Ithaca, N.Y. Export Sales: Borg-Warner International, Chicago 3, Ill. In Canada: Morse Chain of Canada, Ltd., Simcoe, Ont.

COMPARISON—based on 500 hp 1½" chain—25-tooth sprocket

ROLLER CHAIN		HY-VO
WIDTH	7½" 4 strand	5"
SPEED LIMITATION	4,400 fpm 1,400 rpm	13,250 fpm 4,250 rpm

MORSE

A BORG-WARNER INDUSTRY

BW

Circle 169 on Inquiry Card for more data

Gasket engineering

PRACTICAL TOLERANCES CAN CUT GASKET COSTS

Close tolerances in resilient gasket thickness are seldom necessary. Units with extremely close assembly tolerances can usually be sealed with compressible cork-and-rubber materials made to commercial standards.

Tolerances in gasket thickness do not become critical if the material chosen seals effectively over a wide range of compressions.

Armstrong cork-and-rubber compounds are typical of such materials. They will compress from 20% to 33% —depending on the amount of cork in the particular compound—without excessive sideflow.

The cork content of these materials makes them truly compressible. They actually decrease in volume under load. This makes them particularly valuable where the gasket is confined without relief. The absence of sideflow makes it easy to mate flanges.

Tolerances in the gauge of cork-and-rubber gaskets can be as wide as ±.015". This means that commercial tolerances for such materials are perfectly satisfactory for practically all applications.

Equally important—in some cases, more important—the compressibility of cork and rubber sometimes permits increases in the tolerances of the metal components, producing important savings in machining time.

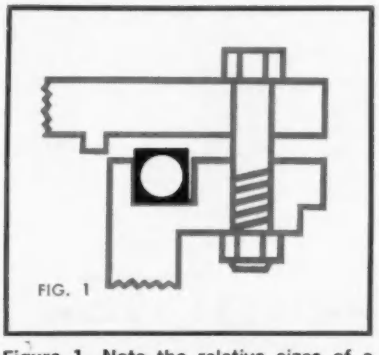


Figure 1. Note the relative sizes of a cork-and-rubber gasket and a comparable non-compressible molded ring. While the ring must be made to very close tolerances, cork-and-rubber's tolerance is not critical.

Figure 1 illustrates the relative sizes of a cork-and-rubber gasket and a comparable non-compressible molded ring. The resilient cork-and-rubber compound permits wide tolerance in its size. The molded ring, however, must be made to very close tolerances to allow perfect fit between the flanges.

Similarly, in figure 2, wide tolerance cork-and-rubber gaskets make an effective packing ring. Their true compressibility controls lateral flow and prevents build-up of radial pressure on the shaft.

When non-compressible rings were used on the flanged journal of the calender roll shown in figure 3, extremely close tolerances were required. Undersized rings leaked. Oversized rings prevented metal-to-metal contact between the flanges and caused misalignment. Both problems were solved with standard-tolerance cork-and-rubber rings, which fitted perfectly and sealed tightly.

There are fifteen different Armstrong cork-and-rubber materials available, including four sponged types. These compounds are made with nitrile-, styrene-, chloroprene-, or butyl-type synthetic rubber binders.

The chemical resistance of these compounds is comparable to that of the corresponding base polymers. Several Armstrong materials meet MIL-G-6183 and other specifications.

In density, Armstrong cork-and-rubbers range from soft, cork-like compounds to very firm compositions that are nearly as incompressible as straight rubber materials. All non-sponged compositions are impervious in their uncompressed state.

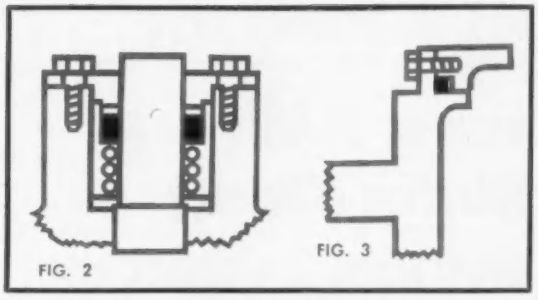


Figure 2. As a packing ring, cork-and-rubber does not build up excessive radial pressure on the shaft.

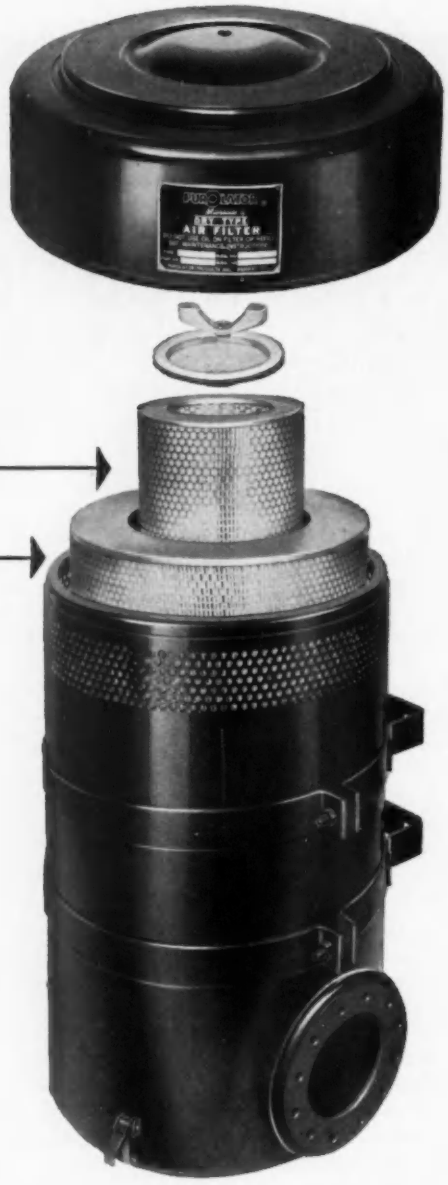
Figure 3. Cork-and-rubber gasket on flanged journal of calender roll.

We also offer special-purpose compounds based on silicone and fluorocarbon polymers for use at temperatures 100° F. to 150° F. above the limit for presently available standard cork-and-rubbers. These special compounds have compressibility in the range of 15% to 25% at 400 psi.

A catalog describing all Armstrong materials will be sent on request. Detailed information on the selection, design, and performance of resilient gasket materials is contained in the Armstrong Gasket Design Manual. Write for your free copy today. Address Armstrong Cork Company, 7103 Imperial Ave., Lancaster, Penna.

Armstrong GASKET MATERIALS

Circle 170 on Inquiry Card for more data



an element here

and an element here

assures 99.98% filtration efficiency even when 1 element is out of operation

IT'S THE NEW PUROLATOR TWO-STAGE FILTER

Simplicity of design makes the first cost of Purolator's new dry-type two-stage filter as low as any two-stage filter on the market. Each element filters independently, and together they dustproof your engine as no other filter can . . . 99.98% efficient.

Users save money and get better engine protection from this new Purolator filter, too. The first stage element will last up to 2000 hours, depending on operating conditions. The second stage will usually last almost indefinitely if the first element and sealing gaskets are maintained properly.

Another big user-advantage is the way the two-stage design protects the engine despite accidental mishandling of the element. Even if the first stage element is damaged, the chance of harming the engine can be discounted when it is protected with the second stage back stop element. In addition, the second stage element lets the operator service the unit in the field, regardless of how dusty the conditions are.

Both elements filter uniformly, in depth, over their whole surface, because they're both precision made of plastic impregnated cellulose. This series of two-stage filters is rated from 450 to 1150 cfm, with exceptionally low initial restriction. Mounting straps, rainhoods and outlet adapters are available.

For more information write to Purolator Products, Inc., Department 3896, Rahway, New Jersey.

Purolator Products, Inc.
Dept. 3896, Rahway, New Jersey

Please send me complete data on the new Purolator two-stage filter series.

Name_____ Title_____

Company_____

Address_____

City_____ Zone_____ State_____

Filtration For Every Known Fluid

PUROLATOR

PRODUCTS, INC.

RAHWAY, NEW JERSEY AND TORONTO, CANADA

ROCKET OR ROCKETTE

Rochester-GM Carburetors are tailor-made for maximum performance and economy

From pick-up to peak performance . . . Rochester-GM Carburetors are tailored to the exact requirements of these famous power plants. These ultra-precision carburetors help deliver maximum mileage and rapid response.

This performance is all part of the GM Reliability built into every Rochester-GM Carburetor . . . from design stage to delivery. In manufacture . . . the toughest quality control standards are applied to every vital part. In on-the-car testing . . . these carburetors are subjected to extremes of climate and driving conditions the year around at GM's three proving grounds. In the field . . . trained trouble-shooters feed back valuable information that is immediately incorporated into future design and manufacturing plans. The results: A carburetor that performs its job when it's asked to perform and for as long as it's expected to perform.

Rochester Products Division of General Motors Corporation, Rochester, New York.

GM

Rochester Reflects Reliability

GENERAL MOTORS

GM

America's number one original equipment carburetors

ROCHESTER CARBURETORS

GENERAL MOTORS

Circle 172 on Inquiry Card for more data

Precisely swaged to hug the rigid curves of a starter solenoid housing, this insulating spacer is fabricated by CDF from 1/8" sheets in one high speed strip operation. No other machining is required. Vulcanized fibre is used because of its electrical insulating properties and its ability to withstand high torque load.

Result: Mass fabrication of a difficult shape to close tolerance at low cost . . . again from CDF!

CDF® CONTINENTAL-DIAMOND FIBRE

CONTINENTAL-DIAMOND FIBRE CORPORATION, NEWARK, DELAWARE • A SUBSIDIARY OF THE Bindf COMPANY

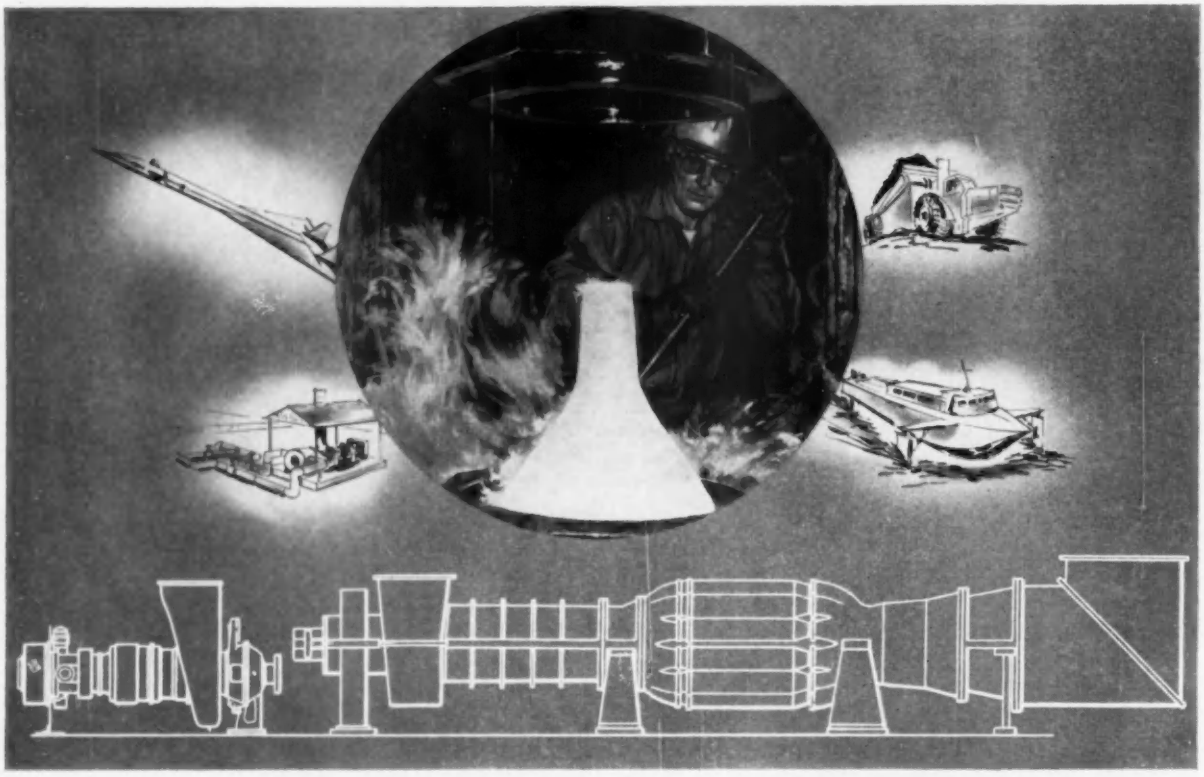
THESE GOOD DIESELS DEPEND ON HMS ROOSA MASTER

In less than 10 years more than 250,000 Roosa Master fuel injection pumps will have served as the heart of these famous diesels. Problems of engine manufacturers have been our greatest asset. Solution of these have led to greater simplicity, greater versatility and increased engine efficiency. Tomorrow's Roosa Master pump will be even more compact, more economical and more versatile. Let our research team help you *before* you design your next diesel. Hartford Machine Screw Company, Division of Standard Screw Company, Hartford 2, Connecticut.

Member

make your good diesel better with HMS ROOSA MASTER

Circle 173 on Inquiry Card for more data



Turbine Forgings Unlimited

Few prime power sources depend so completely on part integrity for reliable performance as the gas turbine. Its extremes of temperature, rotating speed and imposed stress demand a level of metallurgical soundness available only in closed impression die forgings.

This is as true of workaday turbines—serving in the growing list of stationary, propulsion and auxiliary power applications—as for the most critical military designs. In each, dependability stems from component stamina.

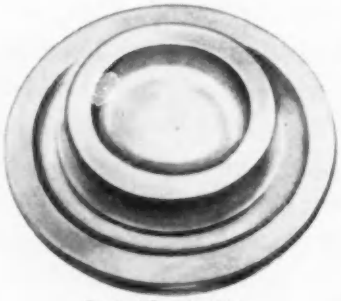
No other process approaches forging for optimum development of required properties, refinement in structure and precise control of flow characteristics. None combines high ultimate strength with comparable ductility to combat severe and sustained shock load.

Experienced leader in Automotive, Aircraft, Missile, Nuclear and Turbine fields, Wyman-Gordon is well prepared to meet your complete forging requirements. For one turbine forging—or thousands—contact Product Manager, Turbine Applications.

EST. 1883

Length 22"; weight, 190 lb.; material, nickel-base, high-temperature alloy (Cutaway shows uniform wall)

Diameter, 10"; weight, 45 lb.; material, Inconel X



Diameter, 29"; weight, 1000 lb.; material, Astroloy

Length, 18"; weight, 10 lb.; material, ironbase, high temperature alloy

Length, 22"; weight, 45 lb.; material, high-strength, nickel-base alloy

WYMAN-GORDON

FORGINGS

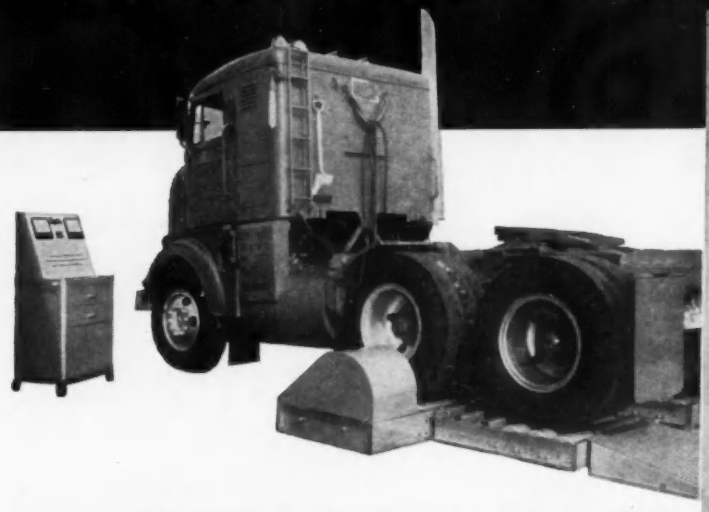
of Aluminum Magnesium Steel Titanium . . . and Beryllium Molybdenum Columbium and other uncommon materials

HARVEY ILLINOIS WORCESTER MASSACHUSETTS DETROIT MICHIGAN

GRAFTON MASSACHUSETTS LOS ANGELES CALIFORNIA PALO ALTO CALIFORNIA FORT WORTH TEXAS

Circle 174 on Inquiry Card for more data

THERE'S A Clayton DYNAMOMETER FOR EVERY HORSEPOWER NEED



A Complete Line of
CHASSIS DYNAMOMETERS

. . . from 150 to 800 rear wheel h.p.

Don't throw away any power built into your truck engine. Trucks operating at specified power get better fuel mileage and give better service. Only the use of a Clayton Chassis Dynamometer can assure *power proved performance.* Permits truck testing under actual driving conditions without leaving the shop. Simple to operate . . . easy to install.

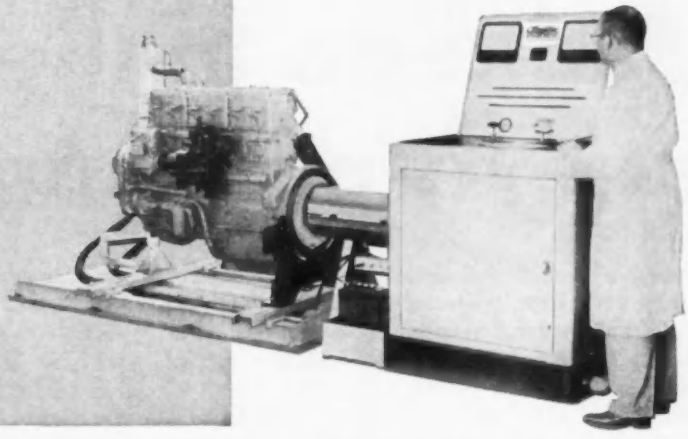
There is a Clayton Chassis Dynamometer to fill every requirement

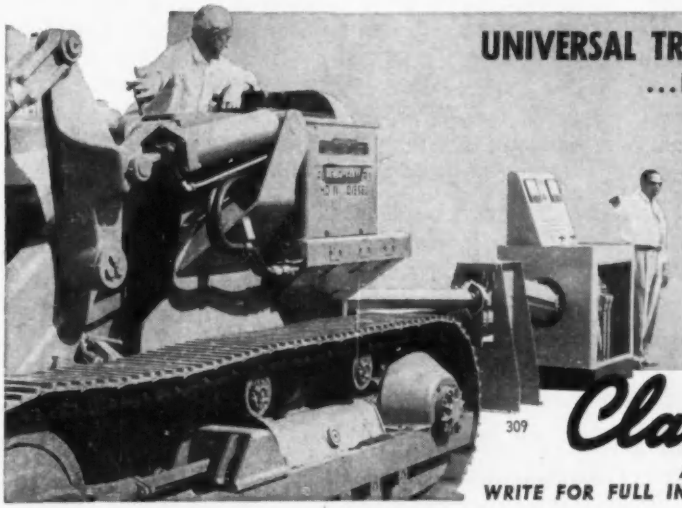
A complete line of
ENGINE DYNAMOMETERS

. . . from 5 to 6000 horsepower for testing gas or diesel engines

Clayton Engine Dynamometers and Universal Test Stands are designed for "run-in" and test of all types of gasoline or diesel engines, and power units equipped with mechanical clutches or torque converters. Quickly and accurately determines actual performance of new or rebuilt engines. Torque loads can be maintained indefinitely or changed at will. Engines installed in minutes . . . automatic alignment.

There is a Clayton Engine Dynamometer Model to handle any engine





UNIVERSAL TRACTOR TEST EQUIPMENT
. . . FOR TESTING ALL POPULAR TRACTOR MAKES

Clayton Dynamometers can be used to test any tractor when used with Universal Tractor Test Equipment. Installed separately or in combination with the Universal Engine Test Stand, it provides complete facilities for testing engines without removing them from the tractor. Will also test tractors and heavy duty rubber tired construction vehicles equipped with power take-off drives, driving through mechanical transmission or torque converter.

There is Clayton Universal Tractor Test Equipment to test any tractor

309

Clayton MANUFACTURING CO.

420 N. Temple City Blvd., El Monte, Calif.

WRITE FOR FULL INFORMATION ON ANY OF THE ABOVE EQUIPMENT

CHRYSLER

NOW offers the most complete power train package in the industry at eye-popping prices!

Now Chrysler M & I offers the most complete engine and power train package in the industry! And stands behind it with the industry's fastest and best field service network—and field service warranty.

New Chrysler industrial engines include nine basic models—170 to 413 cu. inch displacement—famous for long life and trouble free performance in the toughest applications. Most are available in heavy duty standard and heavy duty premium versions to meet your specific power requirements.

Chrysler M & I engines have a new, highly compatible running mate. Chrysler-Perkins, liquid cooled diesel engines—30 to 130 h.p. Product of the world's largest diesel engine manufacturer. Sold and serviced in U.S. by Chrysler M & I.

New Chrysler M & I power train components include (1) Power Torque—a combination torque convertor and power-take-off unit; available in straight line PTO, right angle PTO, transmission adaptation. (2) Automatic transmissions with $10\frac{3}{4}$" or $11\frac{3}{4}$" torque convertor. (3) Rear axles. Chrysler's compact, lightweight Alternator is also available.* All are priced to reflect the mass production capacity of Chrysler Corporation.

Send for specifications and installation drawings.

**All component parts manufactured by Chrysler Corporation—both automotive and truck versions —available through Chrysler M & I Division. Including steering gears, power steering pumps, torque convertors, suspension parts, starters, truck cabs, etc. Detailed information on request.*

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MARINE AND INDUSTRIAL ENGINE DIVISION

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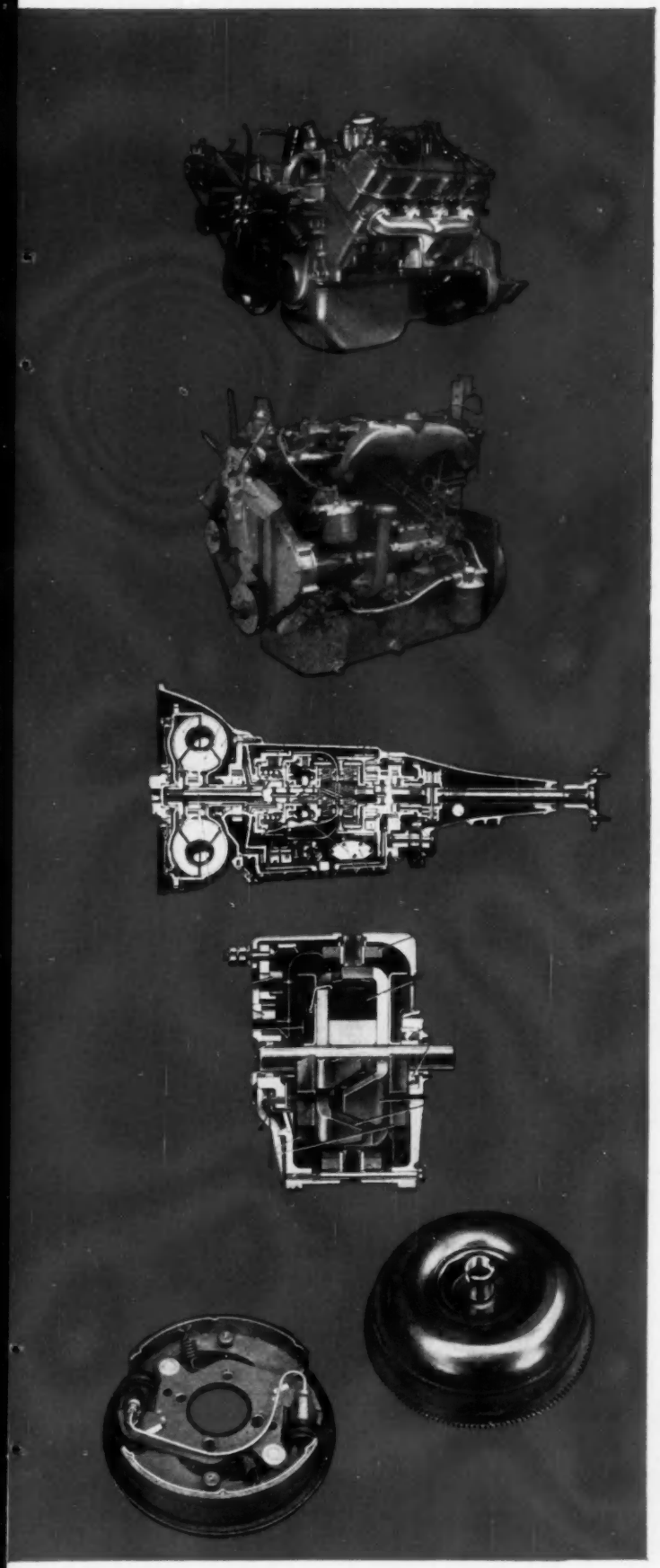

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Six basic models; 3, 4 and 6 cylinder. 30 to 130 hp.

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$10\frac{3}{4}$" or $11\frac{3}{4}$" convertor versions. Input capacity up to 230 or 413 cu. inch displace. engines.

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Provides 10 amp output even at engine idle. Lightweight, compact, durable. Double the life expectancy of ordinary DC generator.

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Dept. A-3, P. O. Box 1836, Detroit 31, Michigan
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☐ Chrysler Engine ☐ Perkins Diesel Engines
Approx Horsepower_____ Application_____
☐ Automatic Transmission ☐ ☐ "Power Torque"
☐ ☐ Alternator _____ (Other)

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COMPANY_____
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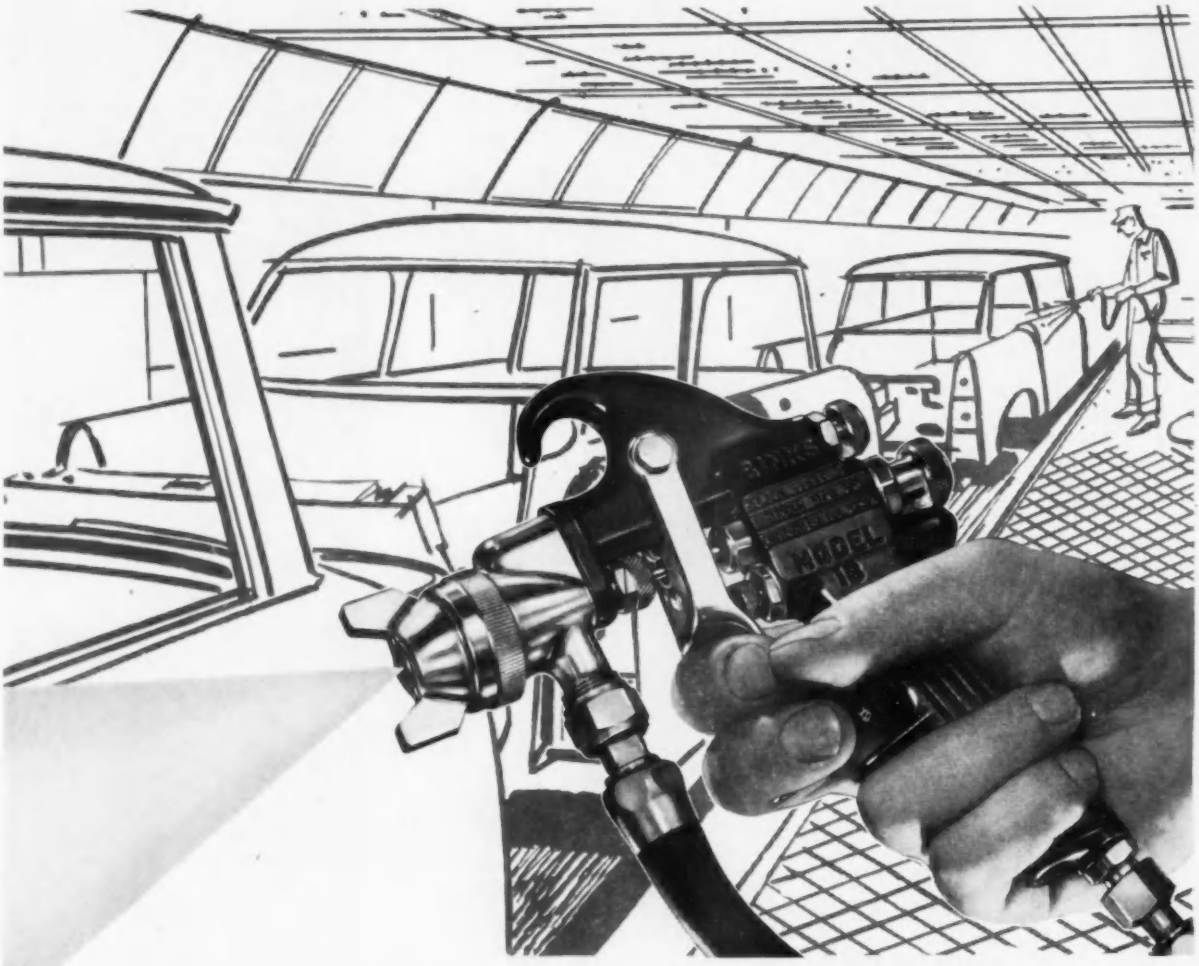

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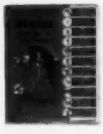

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Binks Everything for spray painting

SKINNER provides custom flexibility in standard solenoid valves

Versatile, top quality V5, X5 line offers wide range of options

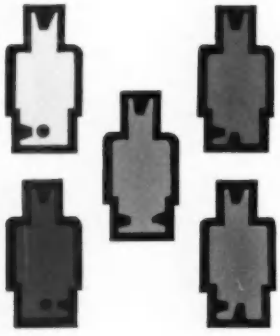
Skinner's two-way and three-way V5, X5 series of solenoid valves has earned the description—"The Universal Line." With more than 100,000 variations possible, V5, X5 valves are available for every conceivable application. And top quality is emphasized with bubbletight sealing, and stainless steel body, plunger and sleeve assembly. Precision machining, unique welding techniques, specially designed and developed machinery and manufacturing methods are all used by Skinner to produce the best valves made. These valves are small, yet handle operating pressures as high as 3000 psi. They accommodate all media that do not corrode stainless steel. And no other solenoid valves offer so many optional features. Check the following options.

FLOW CONTROL

Precise, accurate control of media flow is possible with all Skinner V5, X5 valves. Both two-way and three-way valves are available with adjustable flow in the main stream, and with manual override. Two-way valves are also available with adjustable bypass. Exhaust flow can be controlled in three-way valves.

PORTING

Restrictions of installation or application, and mounting are minimized because Skinner provides a wide variety of port location options. V5, X5 valves are available with ports at right or left angles, on bottom, top, and sides for virtually all combinations of flow.



COILS

Skinner V5, X5 valves are available with coils of many types for most DC and AC voltages at 25, 50 and 60 cycle frequencies. Whether your requirements are for continuous or intermittent performance, in tropical, high moisture or high temperature environments, or for dual voltage, Skinner UL approved coils are available with leads of several types and lengths.

ELECTRICAL HOUSINGS

Skinner offers an electrical housing for any application. Some of the most common are:

- standard ½" NPT conduit
- grommet outlet
- single or double automotive terminals
- JIC housings with integral junction box
- AN connector for military applications
- strain relief connector for quick disconnect

All housings are steel, plated for wear and appearance, and can be rotated 360° for easy installation.

MOUNTING

Skinner V5, X5 valves are provided with tapped holes for normal mounting, with mounting brackets for panel or other surface, or with flange for direct mounting without threaded pipe connections.

The Skinner V5, X5 series of two-way and three-way solenoid valves provides top quality design with orifices from 1/32" to 3/8" diameter, normally open, normally closed, dual purpose, directional control and multi-purpose, in standard and explosion-proof construction. Also included in this line is a three-way quick-exhaust type which is designed with an additional port to exhaust cylinders 4 times faster than standard types.

• • •

Typical applications—machine tools, cylinder control, instrumentation and automation of all kinds, laundry equipment, aircraft and missiles, etc. For catalogs and complete information contact a Skinner Distributor listed in the Yellow Pages or write us at the address below.

When you specify solenoid valves, specify Skinner. Skinner solenoid valves are distributed internationally.

SKINNER ELECTRIC VALVES

THE CREST OF QUALITY

SKINNER ELECTRIC VALVE DIVISION,
THE SKINNER CHUCK COMPANY • NEW BRITAIN, CONNECTICUT, U.S.A.

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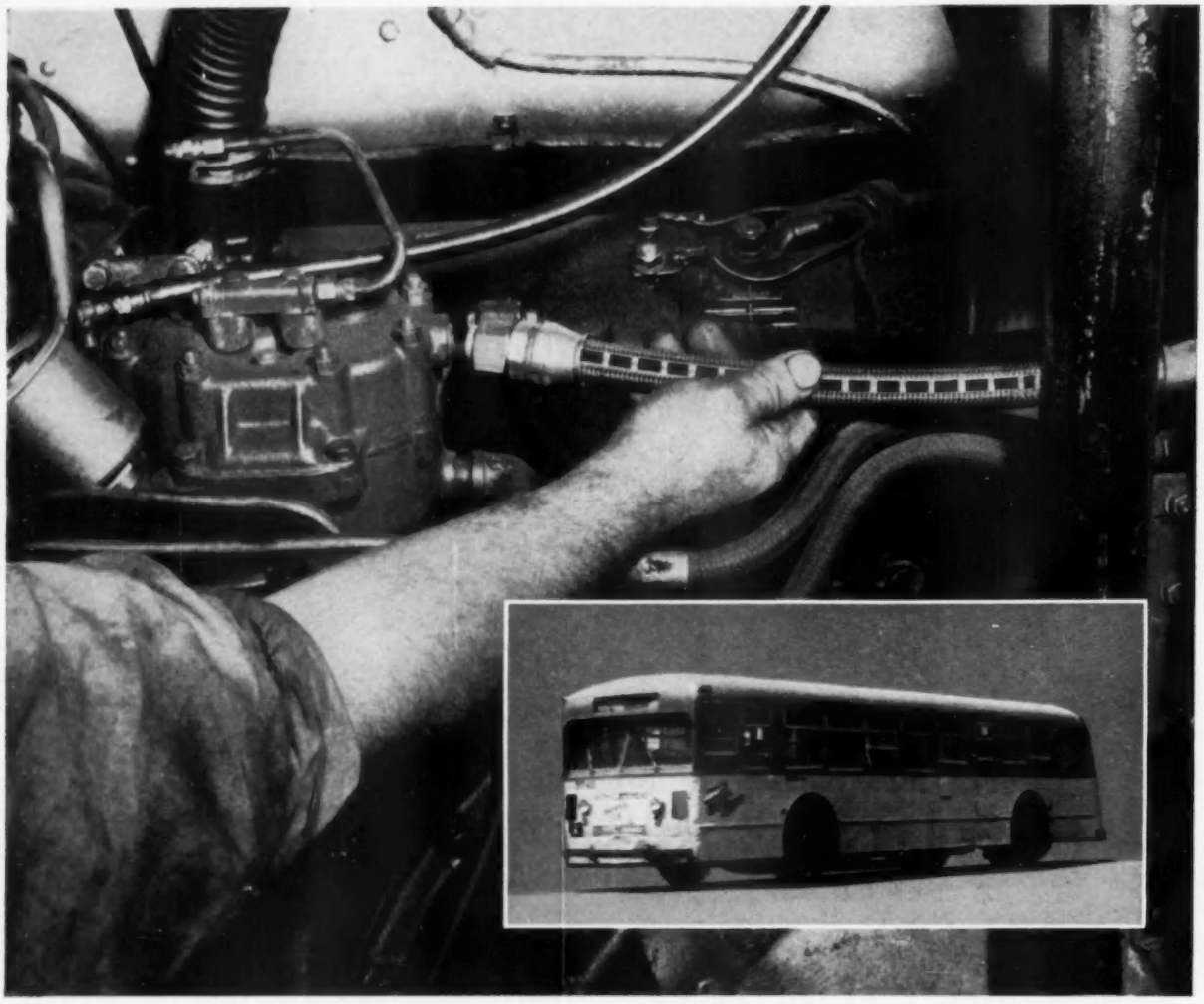
1961 AUTOMOTIVE INDUSTRIES STATISTICAL ISSUE

CONSTRUCTION and FARM EQUIPMENT section



Bus fleet ends costly hose failures by switch to TEFLON®

Problems of pneumatic and hydraulic power lines at high temperatures and pressures are often readily solved by using hose lined with TEFLON fluorocarbon resins. On a fleet of buses, for example, compressor discharge hoses lined with TEFLON (shown above) handle 350°F. discharge air at 110 psi. and stand up under continuous vibration. The hoses previously used burned out and ruptured every few months.

For the entire spectrum of automotive hose applications, hose lined with Du Pont TEFLON resins offers complete resistance to all chemicals encountered . . . exceptional durability under continuous flexing, including torque stress and vibration . . . makes possible space savings by the use of smaller outside diameter hose for a given pressure rating . . . provides that vital margin of safety and reliability when it is needed. The TEFLON TFE resins are rated for continuous use up to 500°F.

New constructions include fiber reinforcements, elastomeric coverings, metal overbraiding and convoluted tubing of TEFLON for greater flexibility. A variety of industrial couplings is available. For more information on properties and performance, consult your hose supplier, or write to: E. I. du Pont de Nemours & Co. (Inc.), Dept. AI-315; Room 2526T, Nemours Building, Wilmington 98, Delaware.

In Canada: Du Pont of Canada Limited, P.O. Box 660, Montreal, Quebec.

DU PONT TEFLON® FLUOROCARBON RESINS

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

TEFLON is Du Pont's registered trademark for its family of fluorocarbon resins, including TFE (tetrafluoroethylene) resins and FEP (fluorinated ethylene propylene) resins.

Shipments of Selected Types of Construction Machinery

As reported by the Industry Division, Bureau of the Census

Type of Equipment	1960* Number	1960* Value	1959 Number	1959 Value	1958 Number	1958 Value
TRACKLAYING TRACTORS						
By Hp rating: Under 50 drawbar hp[1]	19,050	$226,960,000	15,423	$43,199,000	10,991	$30,854,000
50-99 drawbar hp[1]			8,993	77,281,000	8,185	63,617,000
100 drawbar hp and over[1]			9,696	202,472,000	9,274	172,099,000
Attachments	.....	N.A.	.....	17,034,000	.....	16,493,000
Parts	.....	N.A.	.....	242,719,000	.....	199,644,000
Total—Tracklaying Tractors	**19,050**	**$226,960,000**	**34,112**	**$582,705,000**	**28,450**	**$482,707,000**
WHEEL TRACTORS—Contractors' off-highway type:						
By number of wheels: 2-wheel	1,964	41,022,000	2,960	63,690,000	2,824	57,828,000
4-wheel	705	14,863,000	1,105	28,254,000	1,264	27,652,000
By Hp rating: Under 170 brake hp[2]			639	8,417,000	695	8,529,000
170-249 brake hp[2]	2,669	55,885,000	1,065	20,096,000	1,254	22,639,000
250 brake hp and over[2]			2,361	63,431,000	2,139	54,312,000
Attachments	.....	N.A.	.....	3,465,000	.....	2,595,000
Parts	.....	N.A.	.....	25,816,000	.....	32,765,000
Total—Contractors' off-highway tractors	**2,669**	**$55,885,000**	**4,065**	**$121,225,000**	**4,088**	**$120,840,000**
OFF-HIGHWAY EQUIPMENT						
Off-highway haulers (trucks)						
Under 16 tons capacity	1,791	41,429,000	436	6,311,000	690	9,061,000
16 tons and over			1,951	49,253,000	1,016	30,007,000
Off-highway trailers and wagons	204	2,600,000	357	4,567,000	424	5,161,000
Total—Off-highway Equipment	.....	**$44,029,000**	.....	**$60,131,000**	.....	**$44,229,000**
TRACTOR SHOVEL LOADERS—Integral Units						
Wheel Type	6,066	78,260,000	9,256	106,639,000	6,657	69,977,000
Tracklaying	10,340	101,052,000	10,488	122,264,000	7,741	87,912,000
Total—Shovel Loaders	**16,406**	**$179,313,000**	**19,744**	**$228,903,000**	**14,398**	**$157,889,000**
LOCOMOTIVE (EXCEPT WRECKING) CRANES	[3]	[3]	**40**	**$2,925,000**	**36**	**$2,656,000**
POWER CRANES						
Crawler Mounted	133	5,428,000	4,743	166,591,000	4,048	146,414,000
Rubber tired (truck or wheel mounted)			2,890	64,324,000	2,555	59,293,000
Walking Draglines and Walking Cranes			16	10,914,000	22	10,752,000
Total—Power Cranes	**133**	**$5,428,000**	**7,649**	**$241,829,000**	**6,625**	**$216,458,000**
MIXERS, PAVERS, AND RELATED EQUIPMENT						
Concrete Mixers, portable	2,574	3,674,000	21,217	43,276,000	17,378	32,552,000
Concrete Batching Plants	793	11,882,000	1,236	16,992,000	1,086	15,025,000
Bituminous Mixers, Pavers, etc.	1,115	28,725,000	4,480	43,591,000	4,521	43,494,000
Total—Mixers, Pavers, and Related Equipment	.....	**$44,281,000**	.....	**$103,859,000**	.....	**$91,071,000**
CRUSHING, SCREENING, WASHING PLANTS, portable:	**965**	**$24,156,000**	**1,123**	**$32,261,000**	**1,201**	**$29,129,000**
DITCHERS, TRENCHERS, SCRAPERS AND ROLLERS						
Self propelled Ditchers and Trenchers						
Ladder-type	3,390	6,434,000	2,134	6,405,000	1,210	4,019,000
Wheel type	271	4,043,000	522	7,522,000	286	4,136,000
Total—Ditchers and Trenchers	**3,661**	**$10,477,000**	**2,656**	**$13,927,000**	**1,496**	**$8,155,000**
Scrapers, dig, carrying, and hauling						
Under 7 cu. yds.	427	465,000	769	702,000	N.A.	N.A.
7 and under 12 cu. yds.	573	3,492,000	1,397	9,103,000	1,182	7,242,000
12 and under 18 cu. yds.	938	11,755,000	947	10,506,000	1,206	12,045,000
18 cu. yds. and over	929	16,850,000	1,823	35,526,000	1,582	26,949,000
Total—Scrapers	**2,867**	**$ 32,562,000**	**4,936**	**$55,837,000**	**3,970**	**$46,236,000**
Rollers and Compactors						
Rollers, self-propelled						
3-wheeled			628	3,421,000	495	3,631,000
Portable			380	1,363,000	443	804,000
Tandem, 2 and 3 axle	N.A.	22,859,000	1,691	7,439,000	1,828	7,819,000
Other, incl. tamping and sheeps foot			3,138	7,630,000	6,533	20,038,000
Compactors, pull and self-propelled types			4,766	15,186,000		
Total—Rollers and Compactors	.....	**$22,859,000**	**10,603**	**35,039,000**	**9,299**	**$32,292,000**
Total—Ditchers, Trenchers, Scrapers, Rollers, etc.	.....	**$65,898,000**	.....	**$104,803,000**	.....	**$86,683,000**
MOTOR GRADERS AND LIGHT MAINTAINERS						
Under 75 brake hp	791	5,090,000	1,018	5,074,000	1,049	5,375,000
75-114 brake hp	761	9,140,000	986	11,720,000	944	10,836,000
115 brake hp and over	4,341	58,666,000	5,517	79,033,000	4,859	65,805,000
Total—Motor Graders	**5,893**	**$72,896,000**	**7,521**	**$95,827,000**	**6,852**	**$82,016,000**
CONSTRUCTION MACHINERY, for mounting on Tractors						
Side booms or pipehandlers	N.A.	N.A.	302	1,570,000	450	2,457,000
Dozers (6' blade and over)	13,983	27,125,000	23,574	41,677,000	18,614	31,476,000
Backhoes	8,002	16,980,000	14,711	28,291,000	10,031	18,873,000
Front-End Loaders (¾ cu. yd. and over)	13,279	10,039,000	21,354	17,029,000	13,657	9,581,000
Power Control Units	14,394	16,055,000	19,746	22,850,000	17,173	18,220,000
Rippers and Reoters	14,249	5,793,000	4,811	7,549,000	4,113	5,930,000
Total—Machinery for Mounting on Tractors	.....	**$76,886,000**[4]	.....	**$118,986,000**	.....	**$86,537,000**
PORTABLE WATER-WELL AND BLAST-HOLE DRILLS	**340**	**6,154,000**	**343**	**4,419,000**	**N.A.**	**N.A.**
TOTAL—CONSTRUCTION MACHINERY	.....	**$801,884,000***	.....	**$1,697,853,000**	.....	**$1,400,215,000**

[1]—Data for 1960 are in net engine hp. [2]—Data for 1960 are in max. engine hp. [3]—Included with Power Cranes. [4]—Includes value of sidebooms or pipe handlers, and cranes.
*—Data for nine months only. Preliminary figures. N.A.—Not available.

• TRACTOR SHIPMENTS •

Tractor Shipments by Types and by Years

Including Value of Tractors Shipped, Parts and Attachments

As reported by the Industry Div., Bureau of the Census

Year	Number of Shipments	Value at Plant	Average Value per Tractor	Value of Attachments	Value of Parts	Total Value
WHEEL TYPE (EXCEPT CONTRACTORS' OFF-HIGHWAY)						
1960	150,615	$341,092,000	$2,265	N.A.	N.A.	N.A.
1959	252,317	554,077,000	2,196	$69,073,000	$122,190,000	$745,340,000
1958	239,161	491,131,000	2,054	53,814,000	109,776,000	654,721,000
1957	271,061	419,648,000	1,816	49,877,000	99,210,000	568,735,000
1956	222,581	389,841,000*	1,751	32,733,000	105,379,000	527,953,000
1955	326,437	518,731,000	1,589	32,492,000	89,972,000	641,195,000
1954	253,673	396,466,000	1,563	31,464,000	81,083,000	509,013,000
CONTRACTORS' OFF-HIGHWAY TYPE						
1960*	2,669*	$55,885,000*	$20,938	N.A.	N.A.	N.A.
1959	4,065	91,944,000	22,618	$3,465,000	$25,816,000	$121,225,000
1958	4,088	85,480,000	20,910	2,595,000	32,765,000	120,840,000
1957	5,417	104,112,000	19,219	2,618,000	40,432,000	147,162,000
1956	5,339	94,587,000	17,716	598,000	41,031,000	136,216,000
1955	4,144	64,173,000	15,486	606,000	31,367,000	96,146,000
1954	2,871	46,801,000	16,301	1,445,000	16,743,000	64,989,000
TRACKLAYING TYPE						
1960	23,911	$274,694,000	$11,488	N.A.	N.A.	N.A.
1959	34,112	322,952,000	9,467	$17,034,000	$242,719,000	$582,705,000
1958	28,045	266,425,000	9,500	16,493,000	199,644,000	482,562,000
1957	32,863	306,126,000	9,315	15,725,000	202,253,000	524,104,000
1956	55,417	471,384,000	8,506	25,256,000	251,358,000	747,998,000
1955	48,891	359,443,000	7,352	20,904,000	176,417,000	556,764,000
1954	40,374	267,918,000	6,636	18,837,000	116,411,000	403,166,000
TOTAL—ALL TRACTORS (EXCLUDING GARDEN TYPE)						
1960	177,195	$671,671,000	.....	N.A.	N.A.	N.A.
1959	290,494	968,973,000	.....	$89,572,000	$390,725,000	$1,449,270,000
1958	271,294	843,036,000	.....	72,902,000	342,185,000	1,258,123,000
1957	269,341	829,886,000	.....	68,220,000	341,895,000	1,240,001,000
1956	283,337	955,812,000	.....	58,587,000	397,768,000	1,412,167,000
1955	379,472	942,347,000	.....	54,002,000	297,756,000	1,294,105,000
1954	296,918	711,185,000	.....	51,746,000	214,237,000	977,168,000

* Data for nine months only. N.A.—Not Available.

Tractor Shipments By Type and Hp Ratings

In Units and Their Value

As reported by the Industry Division, Bureau of the Census

1960 Type and Hp.	Units	Value
WHEEL-TYPE (except Contractors' Off-Highway)		
9-34 belt hp.	25,716	N.A.
35-39 belt hp.	21,959	N.A.
40-49 belt hp.	31,319	N.A.
50-59 belt hp.	41,172	N.A.
60 belt hp. and over	30,449	N.A.
Total—Wheel-Type	150,615	$341,092,000
WHEEL-TYPE, Contractors' Off-Highway		
Under 200 max. engine hp.	554*	7,182,000*
200-299 max. engine hp.	1,060*	20,299,000*
300 max. engine hp. and over	1,055*	28,404,000*
Total—Contractors' Off-Highway	2,669*	$55,885,000*
TRACKLAYING-TYPE		
20-59 net engine hp.	7,986	N.A.
60-89 net engine hp.	7,894	N.A.
90-129 net engine hp.		
130 net engine hp. and over	8,031	N.A.
Total—Tracklaying-Type	23,911	$274,694,000

* Data for nine months only.

1959 Type and Hp.	Units	Value
WHEEL-TYPE (except Contractors' Off-Highway)		
9-34 belt hp.	59,260	$92,174,000
35-39 belt hp.	38,980	72,523,000
40-44 belt hp.	15,687	27,834,000
45-49 belt hp.	29,382	63,932,000
50-59 belt hp.	72,074	185,705,000
60 belt hp. and over	36,934	111,909,000
Total—Wheel-Type	252,317	$554,077,000
WHEEL-TYPE, Contractors' Off-Highway		
Under 170 brake hp.	639	8,417,000
170-249 brake hp.	1,065	20,096,000
250 brake hp. and over	2,361	63,431,000
Total—Contractors' Off-Highway	4,065	$91,944,000
TRACKLAYING-TYPE		
Under 50 drawbar hp.	15,423	$43,199,000
50-74 drawbar hp.	4,688	30,302,000
75-99 drawbar hp.	4,305	46,979,000
100 drawbar hp. and over	9,696	202,472,000
Total—Tracklaying-Type	34,112	$322,952,000

Production of Tractors by Type of Fuel Used

In Units and Per Cent of Total Production

As reported by the Industry Div., Bureau of the Census

	WHEEL TYPE TRACTORS							TRACKLAYING TRACTORS				
	Gasoline		Diesel		L. P. G.			Gasoline		Diesel		
Year	% of Units	Total	Units	% of Total	Units	% of Total	Total Units	Units	% of Total	Units	% of Total	Total Units
1960	79,919	54.6	60,890	41.6	5,493	3.8	146,302	5,062	19.7	20,610	80.3	25,672
1959	167,961	64.6	79,548	30.6	12,407	4.8	259,916	10,858	29.2	26,304	70.8	37,162
1958	173,040	71.7	55,864	23.2	12,365	5.1	241,269	10,379	42.8	13,852	57.2	24,231
1957	179,142	78.2	37,352	16.3	12,556	5.5	229,050	10,470	28.4	26,332	71.6	36,802
1956	177,077	82.5	26,762	12.5	10,815	5.0	214,654	12,053	20.9	45,558	79.1	57,611
1955	277,105	83.9	41,506	12.6	11,530	3.5	330,141	9,037	19.2	37,936	80.8	46,973
1954	213,008	86.7	27,899	11.3	4,848	2.0	245,755	6,657	16.9	32,747	83.1	39,404

Shipments of Garden Tractors

In Units and Their Value

As reported by the Industry Div., Bureau of the Census

Type and Engine Hp. Group	1959 Number	1959 Value	1958 Number	1958 Value	1957 Number	1957 Value	1956 Number	1956 Value
Garden Tractors								
Riding-Type								
Under 6 hp.	27,047	$7,532,000	6,426	$1,504,000	5,370	$929,000	10,027	$2,167,000
6 to 8 hp.			4,304	1,588,000	4,794	1,762,000	1,563	590,000
8 hp. and over			1,913	632,000			1,424	533,000
Total—Riding-Type	27,047	$7,532,000	12,643	$3,724,000	10,164	$2,691,000	13,014	$3,290,000
Walking-Type								
2 hp. and less	48,258	$7,945,000	2,664	$249,000	5,822	$528,000	9,584	$812,000
2.1 hp. to 6.0 hp.			30,768	5,484,000	33,443	6,012,000	53,115	8,821,000
Over 6 hp.			6,508	1,373,000	2,581	493,000		
Total—Walking-Type	48,258	$7,945,000	39,940	$7,106,000	41,846	$7,033,000	62,699	$9,633,000
Motor Tillers								
2 hp. and less	251,778	$21,750,000	22,444	$1,964,000	26,262	$2,416,000	35,836	$3,468,000
Over 2 hp.			152,046	13,698,000	103,534	9,995,000	91,682	8,724,000
Total—Motor Tillers	251,778	$21,750,000	174,490	$15,662,000	129,796	$12,411,000	127,518	$12,192,000
Total—Tractors & Tillers	327,083	$37,227,000	227,073	$26,492,000	181,806	$22,135,000	203,231	$25,115,000

Value of Shipments of Farm Machines and Equipment (Less Tractors)

All data are in Thousands of Dollars

As reported by the Industry Division, Bureau of the Census

Class of Product	Nine Months* 1960	Nine Months* 1959	1959 Complete Units	1959 Attachments and Parts	1959 Total Value	1958 Complete Units	1958 Attachments and Parts	1958 Total Value
Plows and listers	$39,998	$49,042	$45,693	$31,762	$77,455	$44,153	$29,755	$73,908
Harrows, rollers, pulverizers, stalk cutters	57,305	74,077	89,262	16,381	105,643	76,498	15,556	92,054
Planting, seeding, and fertilizing machinery	65,427	77,181	82,507	28,155	110,662	75,525	25,672	101,197
Cultivators and weeders	32,764	36,570	31,510	19,652	51,162	32,008	16,544	48,552
Sprayers and dusters	28,782	32,329	37,015	8,221	45,236	33,217	7,821	41,038
Harvesting machinery	259,471	282,456	279,144	64,664	343,808	246,253	65,663	311,916
Haying machinery	90,191	118,057	137,622	26,032	163,654	145,991	29,869	175,860
Machines for preparing crops for market or use	17,464	26,825	33,203	8,208	41,411	35,117	9,049	44,166
Farm poultry equipment	N.A.	N.A.	30,903	2,519	33,422	38,730	2,572	41,302
Farm dairy machines and equipment	11,468	12,712	14,911	7,120	22,031	13,155	7,056	20,211
Barn equipment	N.A.	N.A.	20,724	2,064	22,788	18,804	1,589	20,393
Barnyard equipment	N.A.	N.A.	32,433	1,458	33,891	27,521	765	28,286
Farm elevators and blowers	N.A.	N.A.	31,993	5,376	37,369	33,636	5,344	38,980
Farm wagons, trucks, and other transportation equipment	25,929	30,396	37,566	5,778	43,344	30,062	7,439	37,501
Total—Farm machines and equipment	$628,799	$739,645	$904,486	$227,390	$1,131,876	$850,670	$224,694	$1,075,364

* Represents complete units and attachments only. Does not include parts.

Shipments of Integral Tractor Shovel Loaders—1960*

In Units and Their Value

As reported by the Industry Div., Bureau of the Census

	1960 Units	1960 Value
WHEEL-TYPE*		
1 cu. yd. and under 1½ cu. yds.	1,552	$12,153,000
1½ cu. yds. and under 2 cu. yds.	1,413	14,100,000
2 cu. yds. and under 2½ cu. yds.	1,784	26,038,000
2½ cu. yds. and under 3½ cu. yds.	1,152	21,122,000
3½ cu. yds. and over	165	4,847,000
Total—Wheel-Type	6,066*	$78,260,000*
TRACKLAYING-TYPE		
20–59 net engine hp.	6,756	N.A.
60–89 net engine hp.	3,896	N.A.
90–299 net engine hp.	1,686	N.A.
Total—Tracklaying-Type	12,338	$120,083,000

* Data for nine months only for Wheel-Type; full year for Tracklaying-Type. N.A.—Not Available.

Integral Tractor Shovel Loaders Shipments for 1959-1958

In Units and Their Value

As reported by the Industry Division, Bureau of the Census

Bucket Capacities	1959 Units	1959 Value	1958 Units	1958 Value
WHEEL-TYPE				
Under 1 cu. yd.	1,908	$9,766,000	1,388	$6,337,000
1 and under 1½ cu. yds.	2,114	16,196,000	2,416	21,885,000
1½ cu. yds. and over	5,234	80,677,000	2,853	41,755,000
Total—Wheel-Type	9,256	$106,639,000	6,657	$69,977,000
TRACKLAYING-TYPE				
Under 1½ cu. yds.	3,131	$18,519,000	2,193	$17,122,000
1½ and under 2¼ cu. yds.	5,106	59,747,000	4,239	47,246,000
2¼ cu. yds. and over	2,251	43,998,000	1,309	23,544,000
Total—Tracklaying-Type	10,488	$122,264,000	7,741	$87,912,000
Total—All Types	19,744	$228,903,000	14,398	$157,889,000

Shipment of Industrial Trucks and Tractors

Type	1960	1959	1958	1957	1956	1955
Electric-powered						
Hand (motorized)	5,537	5,541	5,062	6,581	7,470	6,661
Rider-type	5,640	4,023	3,898	4,685	5,721	5,580
Total—Electric	11,177	9,564	8,960	11,266	13,191	12,241
Gasoline-powered trucks and tractors	22,625	24,662	16,376	21,110	25,716	26,843
Total—All Types	33,802	34,226	25,336	32,376	38,907	39,084

1961.... HEAVY-DUTY AND OFF-HIGHWAY TRUCKS

The data listed below are for standard models. Optional engines, transmissions and rear axles are available for all makes and models.

MAKE AND MODEL	Type	WHEEL-BASE		WEIGHTS			TIRES		ENGINE						TRANSMISSION			REAR AXLE		FRONT AXLE		No. of Driving Wheels	SERVICE BRAKES	
		Minimum Standard	Maximum Standard	G.V.W.	G.C.W.	Chassis with Cab and Body	Front	Rear—Dual Unless Noted	Make and Model	No. of Cylinders Bore and Stroke	Displacement	Fuel Used	Max. Brake Hp. at R.P.M.	Torque (Lb. Ft.)	Make and Model	Forward Speeds	Reverse Speeds	Make and Model	Gear and Type	Make and Model			Actuation	Total Lining Area (Sq. In.)
Champion																								
27-B	Ch	188		27,000			10.00x20	10.00x20	GM 4-53	4-3⅞x4½	212	D	130-2800	262	Ful 5B33	5	1	Eat 16803	SF	Tim FE900	2	2	A	
33-B	Ch	209		33,000			10.00x20	10.00x20	GM 6-71	6-4¼x5	426	D	227-2250	270	Spi 8251	5	1	Tim QT143	HF	Tim FE900	2	2	A	
42-TH	Ch	100		21,500			7.50x20	7.50x20	Chr Ind. 32	6-3⅞x4¾	265	G	120-3600	221	NP 91620	5	1	Tim H140	HF	GM 405A	2	2	A	
42-TM	Ch	100		33,000			8.25x20	8.25x20	Ford ECT	8-3⅛x3⅛	332	G	205-3800	312	All MT30	6	1	Tim QT143	HF	Shu FE11	4	2	A	
M-464	Ch	151		35,500			8.25x20	8.25x20	GM 302	6-4x4	302	G	160-3800	268	Ful 5B33	10	2	Tim SFHD	F	Tim FC901	4	4	H	
M-664	Ch	151		49,000			9.00x20	9.00x20	Int RD450	6-4⅝x5	450	G	182-3000	388	Ful 5A62	10	2	Tim SLHD	HF	Shu FE15	4	4	H	
42D23	Ch	142		23,000			8.25x20	8.25x20	Chr Ind. 32	6-3⅞x4¾	265	G	120-3600	221	NP 91620	10	2	Tim L140	HF	Tim FD901	2	4	H	
64D35	Ch	160		35,000			8.25x20	8.25x20	GM 270	6-3⅞x4	270	G	140-3600	246	Ful 5B33	10	2	Tim SDHD	HF	Tim FC901	4	4	H	
66D35	Ch	160		35,000			8.25x20	8.25x20	GM 270	6-3⅞x4	270	G	140-3600	246	Ful 5B33	10	2	Tim SDHD	HF	Tim F34	6	4	H	
64D45	Ch	163		45,000			9.00x20	9.00x20	GM 302	6-4x4	302	G	160-3800	268	Ful 5B33	10	2	Tim SLHD	HF	Shu FE11	4	4	H	
64D55	Ch	187		55,000			10.00x20	10.00x20	Int RD501	6-4⅛x5¼	501	G	212-3000	444	Ful 5A62	10	2	Tim SQHD	HF	Shu FE15	4	4	A	
668	Ch	149		35,000			7.50x20	7.50x20	Chr Ind. 32	6-3⅞x4¾	265	G	120-3600	221	NP 91620	10	2	Tim SDHD	HF	Tim F34	6	4	H	
6410	Ch	149		37,000			7.50x20	7.50x20	Chr Ind. 32	6-3⅞x4¾	265	G	120-3600	221	NP 91620	10	2	Tim SFHD	F	Tim FC901	4	4	H	
6413	Ch	163		37,000			8.25x20	8.25x20	GM 270	6-3⅞x4	270	G	140-3600	246	Ful 5B33	10	2	Tim SFHD	F	Tim FD901	4	4	H	
6415	Ch	163		43,000			9.00x20	9.00x20	GM 302	6-4x4	302	G	160-3800	268	Ful 5B33	10	2	Tim SLHD	HF	Shu FE11	4	4	H	
6418	Ch	180		51,000			10.00x20	10.00x20	Int RD406	6-4⅝x4½	406	G	175-3200	338	Ful 5A62	10	2	Tim SQHD	HF	Shu FE15	4	4	A	
6420	Ch	190		55,000			10.00x20	10.00x20	Int RD450	6-4⅝x5	450	G	182-3000	388	Ful 5A62	10	2	Tim SQD	HDF	Shu FE15	4	4	A	
6620	Ch	190		55,000			10.00x20	10.00x20	GM 4-51	4-4¼x5	284	D	132-1800	396	Spi 8231	10	2	Tim SQD	HDF	Tim F3300	6	4	A	
6425	Ch	205		65,000			11.00x20	11.00x20	Int RD501	6-4⅛x5¼	501	G	212-3000	444	Ful 5A65	10	2	Tim SRD	HDF	Shu FE15	4	4	A	
6430	Ch	215		68,000			11.00x20	11.00x20	Cum NH220B	6-5½x6	743	D	220-2100	606	Spi 8241	12	3	Tim SW457	WF	Shu FE18	4	4	A	
Chevrolet																								
M7303	Ch		157	36,000	51,000		8.00x22.5	8.00x22.5	Own Wk. Mas.	8-4⅛x3¼	348	G	185-4000	315	Spi 3152	5	1	Eat 30D	SF	Own	4	H	958	
M7503	Ch		175	36,000	51,000		8.00x22.5	9.00x22.5	Own Wk. Mas.	8-4⅛x3¼	348	G	185-4000	315	Spi 3152	5	1	Eat 30D	SF	Own	4	H	958	
M7803	Ch		193	36,000	51,000		9.00x22.5	10.00x22.5	Own Wk. Mas.	8-4⅛x3¼	348	G	185-4000	315	Spi 3152	5	1	Eat 30D	SF	Own	4	H	958	
Euclid																								
1UD	EDT	148	148	41,750		21,750	11.00x25	12.00x25	GM 4-71	4-4½x5	284	D	132-1800	396	Ful 10E650	10	2	Own 34RA	F	Own		A	654	
91FD	EDT	155	155	68,200		32,200	13.00x25	16.00x25	GM 6-71	6-4¼x5	426	D	227-2100	606	Ful 5F1220	5	1	Own	F	Own		A	786	
94FD	EDT	155	155	68,400		32,400	13.00x25	16.00x25	Cum NH6B1	6-5½x6	743	D	220-2100	606	Ful 5F1220	5	1	Own 60RA	Sf	Own		A	786	
46TD	EDT	165	165	87,300		43,300	14.00x25	18.00x25	Cum NHRS6B1	6-5½x6	743	D	320-2100	865	Ful 10F1220	10	2	Own 47RA	F	Own		A	1072	
60TD	EDT	177	177	87,500		43,500	14.00x25	18.00x25	GM 6-110	6-5x5½	660	D	310-2000	915	Ful 10F1220	10	2	Own 47RA	F	Own		A	1072	
65TD	EDT	165	165	102,100		48,100	18.00x25	18.00x25	GM 6-110	6-5x5½	660	D	336-2000	938	All CBLT5640	4	2	Own	Sf	Own		A	1072	
66TD	EDT	165	165	101,750		47,750	18.00x25	18.00x25	Cum NRTO6B1	6-5½x6	743	D	335-2100	900	All CBLT5640	4	2	Own	Sf	Own		A	1072	
9FFD	EDT	180	180	188,000		78,000	18.00x25	18.00x25	GM T-6-71[3]	6-4¼x5	426	D	470-2100	1260	All TG609[3]	3	1	Own 72RA[3]	F	Own		A	1620	
10FFD	EDT	180	180	188,000		78,000	18.00x25	18.00x25	Cum NT6B1[3]	6-5½x6	743	D	500-2100	1390	All TG609[3]	3	1	Own 72RA[3]	F	Own		A	1620	
5LLD	EDT	219	219	226,000		116,000	18.00x33	18.00x33	GM 6-110[3]	6-5x5½	660	D	672-2000	1876	All CT5840[3]	4	2	Own 50RA[3]	F	Own		A	2406	
6LLD	EDT	219	219	226,000		116,000	18.00x33	18.00x33	Cum NRTO6B1[3]	6-5½x6	743	D	670-2100	1800	All CT5640	4	2	Own 50RA[3]	F	Own		A	2406	
S-7	EDTr	174	174	50,500		26,500	18.00x25	18.00x25	GM 4-71	4-4¼x5	284	D	148-2100	396	All CT3340[3]	4	2	Own		Own 63RA		A	840	
S-12	EDTr	204	138	88,000		44,000	24.00x25	24.00x25	GM 6-71	6-4¼x5	426	D	218-2100	570	Ful SF1220	5	1	Own	R	Own		A	1072	
S-18	EDTr	236	236	137,000		67,000	27.00x33	27.00x33	GM 6-110	6-5x5½	660	D	336-2000	938	All CT5640	4	2	Own		Own		A	2360	
11FFD	EDT	180		156,000		76,000	18.00x25	18.00x25	GM 12V-71	12-4¼x5	852	D	432-2100	1210	All CLBT5840	4	2	Own	F	Own	4	A	1620	
12FFD	EDT	180		156,000		76,000	18.00x25	18.00x25	Cum NVH	12-5½x6	1486	D	450-2100	1230	All CRBT5840	4	2	Own	F	Own	4	A	1620	
Ford																								
T-700	Ch	158	194	29,000		8,300	9.00x22.5	9.00x22.5	Own ECS	8-3⅝x3⅜	302	G	187-3800	280	Cla 250V	5	1	Eat 22M	HF	Tim FC903	4	H	657	
T-750	Ch	158	212	37,000		9,419	10.00x22.5	10.00x22.5	Own ECT	8-3⅞x3⅜	332	G	200-3800	307	Cla 2651-V1	5	1	Eat 28M	HF	Tim FD903	4	H	801	
T-800	Ch	158	212	39,000	55,000	10,322	10.00x22.5	10.00x22.5	Own ECT	8-3⅞x3⅜	332	G	200-3800	307	Cla 2651-V1	5	1	Eat 30DP	SF	Tim FD903	4	H	801	
T-850	Ch	146	212	39,000	55,000	10,556	10.00x22.5	10.00x22.5	Own EDL4V	8-4⅛x3⅝	401	G	226-3600	343	Spi 5652	5	1	Eat 30DP	SF	Tim FD903	4	H	801	
T-950	Ch	158	212	51,000	75,000	11,915	11.00x22.5	11.00x22.5	Own EDL4V	8-4⅛x3⅝	401	G	226-3600	343	Spi 5652	5	1	Eat 38DP	SF	Tim FG903	4	A	1061	
CT-750	Ch	135	161	37,000		11,181	10.00x22.5	10.00x22.5	Own ECT	8-3⅞x3⅜	332	G	200-3800	307	Cla 2651-V1	5	1	Eat 28M	HF	Tim FE903	4	A	855	
CT-800	Ch	135	161	45,000		11,696	10.00x22.5	10.00x22.5	Own ECT	8-3⅞x3⅜	332	G	200-3800	307	Cla 2651-V1	5	1	Eat 34M	SF	Tim FE903	4	A	993	
CT-850	Ch	135	161	45,000	55,000	12,197	11.00x22.5	11.00x22.5	Own EDL4V	8-4⅛x3⅝	401	G	226-3600	343	Spi 5652	5	1	Eat 34M	SF	Tim FE903	4	A	993	
CT-950	Ch	135	161	51,000	75,000	13,402	11.00x22.5	11.00x22.5	Own EDL4V	8-4⅛x3⅝	401	G	226-3600	343	Spi 5652	5	1	Eat 38DP	SF	Tim FG903	4	A	1061	
F-1100OH	Ch	146	212	36,000		9,440	11.00x22.5	11.00x22.5	Own EDM4V	8-4⅛x3⅝	477	G	253-3400	415	Spi 6352	5	1	Tim U200	HhF	Tim FD903	2	A	718	
C-1100OH	Ch	111	175	36,000		9,480	11.00x22.5	11.00x22.5	Own EDM4V	8-4⅛x3⅝	477	G	253-3400	415	Spi 6352	5	1	Tim U200	HhF	Tim FD903	2	A	718	
FWD																								
6-487	Ch	162	162	48,000		13,650	10.00x20	10.00x20	Int RD501	6-4⅛x5¼	501	G	212-3000	444	Ful 5C65	5	1	Own 6-33AR	SF	Own 22A	6	A	1152	
6-486D	Ch	184	184	48,000		15,450	10.00x20	10.00x20	GM 6-71	6-4¼x5	426	D	227-2250	570	Ful 5C72	5	1	Own 6-33AR	SF	Own 22A	6	A	1152	
6-489D	Ch	184	184	48,000		15,500	10.00x20	10.00x20	Cum NH220	6-5½x6	743	D	220-2100	607	Ful 5C72	5	1	Own 6-33AR	SF	Own 22A	6	A	1152	
6-606D	Ch	192	192	60,000		18,900	12.00x20	12.00x20	GM 6-71	6-4¼x5	426	D	227-2250	570	Ful 10A1120	10	2	Own 32	SF	Own 6-33	6	A	1152	
6-609D	Ch	192	192	60,000		19,000	12.00x20	12.00x20	Cum NH220	6-5½x6	743	D	220-2100	607	Ful 10A1120	10	2	Own 32	SF	Own 6-33	6	A	1152	
408	Ch	142	211	40,000		13,970	12.00x20	12.00x20	Wau 145GK	6-5½x6	779	G	216-2000	595	Ful 10A1120	10	2	Own 33	SF	Own 32	4	AH	640	
409	Ch	142	211	40,000		14,000	12.00x20	12.00x20	Wau 145GKB	6-5½x6	779	G	240-2400	595	Ful 10A1120	10	2	Own 33	SF	Own 32	4	AH	640	
406D	Ch	142	211	40,000		14,800	12.00x20	12.00x20	GM 6-71	6-4¼x5	426	D	227-2250	570	Ful 10A1120	10	2	Own 33	SF	Own 32	4	AH	640	

	409D	Ch	142	211	40,000		15,000	12.00x20	12.00x20	Cum	NH220	6-5½x6	743	D	220-2100	607	Ful	10A1120	10	2	Own	33	SF	Own	32	4	AH	640
	6-609	Ch	192	236	60,000		18,100	12.00x20	12.00x20	Wau	145GKB	6-5¼x6	779	G	240-2400	595	Ful	10A1120	10	2	Own	32	SF	Own	6-33	6	A	1152
	6-507	Ch	160	272	56,000		16,200	11.00x20	11.00x20	Int	RD501	6-4½x5¼	501	G	212-3000	444	Ful	5C65	5	1	Own	6-33ART	SF	Own	22HD	6	A	1152
	6-557	Ch	160	272	60,000		16,700	11.00x20	11.00x20	Int	RD501	6-4½x5¼	501	G	212-3000	444	Ful	5C65	5	1	Own	6-33ART	SF	Own	32AR	6	A	1152
	86-707	Ch	166	260	70,000		17,400	11.00x20	11.00x20	Int	RD501	6-4½x5¼	501	G	212-3000	444	Ful	5C65	5	1	Own	22A	SF	Own	6-33AR	6	A	1440
	DR-426	Ch	154	211	42,000		14,700	12.00x20	12.00x20	Wau	145GK	6-5¼x6	779	G	216-2000	595	Ful	10A1120	10	2	F-E	3-28	SF	F-E	2-18	4	A	763
	DR-429	Ch	154	211	42,000		14,700	12.00x20	12.00x20	Wau	145GKB	6-5¼x6	779	G	240-2400	595	Ful	10A1120	10	2	F-E	3-28	SF	F-E	2-18	4	A	763
	DR-426D	Ch	154	211	42,000		15,500	12.00x20	12.00x20	GM	6-71	6-4½x5	426	D	227-2250	570	Ful	10A1120	10	2	F-E	3-28	SF	F-E	2-18	4	A	763
	DR-429D	Ch	154	211	42,000		15,600	12.00x20	12.00x20	Cum	NH220	6-5½x6	743	D	220-2100	607	Ful	10A1120	10	2	F-E	3-28	SF	F-E	2-18	4	A	763
	6-627	Ch	154	260	62,000		16,600	14.00x20	10.00x20	Int	RD501	6-4½x5¼	501	G	212-3000	444	Ful	5C65	5	1	Own	32R	SF	Own	6-33ART	6	A	1152
Kenworth	552		190	260	54,000	100,000	26,000	13.00x24	13.00x24	Cum	NH220	6-5½x6	743	D	220-2100	612	Spi	8241	4	1	Tim	SFD4640	HF	Tim	F3200W	6	A	1160
	848		211	234	65,000	120,000	23,000	12.00x24	12.00x24	Cum	NH220	6-5½x6	743	D	220-2100	612	Spi	8241	4	1	Tim	SFD4640	HF	Tim	FG900N	6	A	868
	849		211	234	65,000	120,000	23,000	12.00x24	12.00x24	Cum	NH220	6-5½x6	743	D	220-2100	612	Spi	8241	4	1	Tim	SFD4640	HF	Tim	FG900N	6	A	868
	953	Ch	258¾					21.00x25	21.00x25S	Cum	NHRBS	6-5½x6	743	D			Spi	8241	4	1	Tim	SFD4640	HF	Tim	F7900	6	A	
	984	Ch	258¾					21.00x25	21.00x25S	Cum	NHRBS	6-5½x6	743	D			Spi	8241	4	1	Tim	SFD4741	HF	Tim	F7900	6	A	
	851	Ch	190	236	46,000	72,000	20,000	14.00x20	14.00x20S	Cum	C175	6-4⅞x5	464	D	175-2500	405	Ful	5A65	5	1	Tim	SLD	HF	Tim	F223N	6	A	868
	854	Ch	190	236	62,000	80,000	22,000	14.00x20	14.00x20	Cum	C175	6-4⅞x5	464	D	175-2500	405	Ful	5A65	5	1	Tim	SFD4640	HF	Tim	F223N	6	A	868
	853	Ch	224					18.00x25	14.00x20	Cum	NHRBS	6-5½x6	743	D			Spi	8241	4	1	Tim	SFD4640	HF	Tim	F7900	6	A	
	853-D	Ch	224					18.00x25	18.00x25S	Cum	NHRBS	6-5½x6	743	D			Spi	8241	4	1	Tim	SFD4741	HF	Tim	F7900	6	A	
	835	Ch	110	110				16.00x20	37.00x21S	Cum	C175	6-4⅞x5	464	D	175-2500	405	Spi	6852	5	1	Cla	RD22500	HF	Cla	FDS12050	4	A	
KW-Dart	10S	EDT	108	108	40,000		20,000	12.00x20	12.00x20	Cum	C160	6-4⅞x5	464	D	160-2500	378	Ful	5C65	5	1	Tim	U200	HF	Tim	27463	2	A	678
	15SL	EDT	156	156	62,500		32,500	12.00x25	14.00x25	Cum	NH6	6-5½x6	743	D	220-2100	606	Ful	5F1220	5	1	Tim	PR400	HF	Shu	FE18A	2	A	904
	25SL	EDT	176	176	95,600		45,600	14.00x25	18.00x25	Cum	NHRS6	6-5½x6	743	D	320-2100	865	Ful	10F1220	10	2	Own	D75S	HeF	Tim	FU900	2	A	1335
	30SL	EDT	176	176	107,200		47,200	16.00x25	18.00x25	Cum	NRTO6	6-5½x6	743	D	335-2100	900	Ful	10F1220	10	2	Own	D75S	HeF	Tim	FU900	2	A	1335
	35SL	EDT	200	200	131,000		61,000	18.00x25	18.00x33	Cum	NVH12	12-5½x6	1486	D	450-2100	1230	Own	GA966	3	1	Own	D100S	HeF	Own	TFA1800	2	A	1537
	40T	EDT	206	206	158,500		78,500	18.00x25	18.00x25	Cum	NVH12	12-5½x6	1486	D	450-2100	1230	Own	GA966	3	1	Own	D75T	HeF	Own	TFA1800	4	A	2195
	50S-BDT	BDTr	142[2]	142[2]	158,700		58,700	14.00x25	18.00x25	Cum	NHRS6	6-5½x6	743	D	320-2100	865	Ful	10F1220	10	2	Own	D75S	HeF	Tim	FU900	2	A	2195
	70S-BDT	BDTr	156[4]	156[4]	222,500		82,500	18.00x25	18.00x33	Cum	NVH12	12-5½x6	1486	D	450-2100	1230	Ful	R1750	9	2	Own	D100S	HeF	Own	TFA1800	2	A	2599
	30S	EDT	132	132	108,900		48,900	18.00x25	18.00x25	Cum	NHRS6	6-5½x6	743	D	320-2100	865	Ful	10F1220	10	2	Own	D75S	HeF	Own	TFA1800	2	A	1335
	40SL	EDT	185	185	146,500		66,500	18.00x33	18.00x33	Cum	NVH12	12-5½x6	1486	D	450-2100	1230	Own	GA966	3	1	Own	D100S	HeF	Own	1F1	2	A	1674
	50T	EDT	206	206	188,000		88,000	18.00x25	18.00x25	Cum	VT12	12-5½x6	1486	D	600-2100	1635	Own	GU1097	4	1	Own	D75T	HeF	Own	TFA1800	4	A	2195
	50EDT	EDTr	176[5]	176[5]	168,700		68,700	14.00x25	18.00x25	Cum	NHRS6	6-5½x6	743	D	320-2100	865	Ful	10F1220	10	2	Own	D75S	HeF	Tim	FU900	2	A	2195
	70EDT	EDTr	200[1]	200[1]	229,000		89,000	18.00x25	18.00x33	Cum	VT12	12-5½x6	1486	D	600-2100	1635	Own	GU1097	4	1	Own	D100S	HeF	Own	TFA1800	2	A	2599
Marmon-Herrington	T1806	Ch	158	212	43,000		10,838	11.00x22.5	11.00x22.5	Ford		8-3⅞x3½	332	G	205-3800	312	Ford		5	1	Ford		HF	Tim	FH150	6	H	808
	T1756	Ch	158	212	37,000		10,298	10.00x22.5	10.00x22.5	Ford		8-3⅞x3½	332	G	205-3800	312	Ford		5	1	Ford		HF	Tim	FH150	6	H	766
	T1856	Ch	158	212	43,000		11,243	11.00x22.5	11.00x22.5	Ford		8-4½x3¾	401	G	220-3600	345	Ford		5	1	Ford		HF	Tim	FH150	6	H	808
Oshkosh	W-2500	Ch			90,000		31,500	16.00x25	16.00x25	Cum	NHRS6B	6-5½x6	743	D	320-2100	865	All	TG602	3	1	Own	R2500	DF	Own	F2500	4	A	1260
	W-2501	Ch			90,000		31,500	16.00x25	16.00x25	HS	6182B1	6-5¾x7	1091	L	368-2200	1092	All	TG602	3	1	Own	R2500	DF	Own	F2500	4	A	1260
	W-817	Ch	158	Opt	40,000		14,400	12.00x20	12.00x20	Cum	HRF6B	6-5½x6	743	D	190-2000	580	Own	MT817	5	1	Own	RA817	HF	Own	FA817	4	A	678
	W-827	Ch	158	Opt	40,000		14,600	12.00x20	12.00x20	Cum	HRF6B	6-5½x6	743	D	190-2000	580	Own	MT827	5	1	Own	RA827	DF	Own	FA827	4	A	678
	WB-906	Ch	160	Opt	42,000		16,000	13.00x20	13.00x20	Cum	HRF6B	6-5½x6	743	D	190-2000	580	Own	MT906	4	1	Own	RA906	DF	Own	FA906	4	A	768
	W-2211	Ch	160	Opt	44,000		16,500	13.00x20	13.00x20	Wau	145GZ	6-5¾x6	817	G	265-2600	630	Own	MT2211	4	1	Own	RA2211	DF	Own	FA2211	4	A	768
	WA-2206	Ch	160	Opt	54,000		19,000	13.00x24	13.00x24	HS	6182G1	6-5¾x7	1091	G	332-2200	960	Own	MT2206	5	1	Own	RA2206	DF	Own	FA2206	4	A	789
	WA-2208	Ch	160	Opt	44,000		17,500	13.00x20	13.00x20	Cum	NH220	6-5½x6	743	D	220-2100	606	Own	MT2208	4	1	Own	RA2208	DF	Own	FA2208	4	A	768
	W-2209	Ch	160	Opt	54,000		19,500	13.00x24	13.00x24	Cum	NHRS6B	6-5½x6	743	D	320-2100	865	Own	MT2209	5	1	Own	RA2209	DF	Own	FA2209	4	A	789
	W-825-6x6	Ch	178	Opt	45,000	90,000	17,500	11.00x20	11.00x20	Cont	R6602	6-4⅞x5½	602	G	232-2800	484	Own	MT825	5	1	Tim	SQD	DF	Own	FA825	6	A	
	W-826-6x6	Ch	187	Opt	45,000	90,000	19,000	11.00x20	11.00x20	Cum	H6B	6-4⅞x6	672	D	160-1800	512	Own	MT826	5	1	Tim	SQD	DF	Own	FA826	6	A	
	WC-906	Ch	160	Opt	42,000		16,400	13.00x20	13.00x20	Cum	NH220	6-5½x6	743	D	220-2100	606	Own	MT906	4	1	Own	RA906	DF	Own	FA906	4	A	768
	18-34	Ch	155	Opt	52,000		15,000	14.00x20	10.00x20	Int	RD501	6-4½x5¼	501	G	212-3000	444	Own	MT18	5	1	Tim	SLDD	DF	Own	FA18	6	A	1052
	18-38	Ch	156	Opt	56,000		16,220	14.00x20	11.00x20	Int	RD501	6-4½x5¼	501	G	212-3000	444	Own	MT18	5	1	Tim	SQDD	DF	Own	FA18	6	A	1206
	W-2206-M	Ch	160	Opt	62,000		21,000	14.00x24	14.00x24	HS	6182G1	6-5¾x7	1091	G	332-2200	960	Own	MT2206M	5	1	Own	R2206M	DF	Own	F2206M	4	A	789
	W-2209-M	Ch	160	Opt	62,000		21,500	14.00x24	14.00x24	Cum	NHRS6B	6-5½x6	743	D	320-2100	865	Own	MT2206M	5	1	Own	R2209M	DF	Own	F2209M	4	A	789
	W-2800	Ch			120,000		54,000	18.00x25	18.00x25	Cum	NHRS6B	6-5½x6	743	D	320-2100	865	All	CBT5640	3	1	Own	R2800	PF	Own	F2800	4	A	
	WA-906-6x6	Ch	216	Opt	65,000	130,000	24,720	12.00x24	12.00x24	Cum	NH250	6-5½x6	855	D	250-2100	685	Own	MT906	4	1	Tim	SFD4640P	DF	Own	FA906	6	A	
	45-55	Ch	144	Opt	42,000		12,800	14.00x20	11.00x24	Cum	JT6B	6-4½x5	401	D	175-2500	407	Own	MT45	5	1	Own	RA55	DF	Own	FA45	4	A	716
	W-214	Ch	150	Opt	24,000		9,025	9.00x20	9.00x20	Cont	B6427	6-4⅞x47½	427	G	175-2500	328	Own	MT214	5	1	Own	RA214	HF	Own	FA214	4	H	447
	W-216	Ch	152	Opt	23,600		8,915	10.00x22.5	10.00x22.5	Int	RD406	6-4⅝x4½	406	G	175-3200	338	Own	MT216	5	1	Own	RA216	HF	Own	FA216	4	H	447
	W-314	Ch	150	Opt	28,000		9,950	10.00x20	10.00x20	Cont	T6427	6-4⅞x47½	427	G	170-3000	350	Own	MT314	5	1	Own	RA314	HF	Own	FA314	4	H	537
	W-316	Ch	152	Opt	28,000		9,310	10.00x22.5	10.00x22.5	Int	RD406	6-4⅝x4½	406	G	175-3200	338	Own	MT316	5	1	Own	RA316	HF	Own	FA316	4	H	537
	W-414	Ch	150	Opt	30,000		10,150	10.00x20	10.00x20	Cont	T6427	6-4⅞x47½	427	G	170-3000	350	Own	MT414	5	1	Own	RA414	HF	Own	FA414	4	H	568
	W-416	Ch	152	Opt	30,000		10,060	11.00x22.5	11.00x22.5	Int	RD406	6-4⅝x4½	406	G	175-3200	338	Own	MT416	5	1	Own	RA416	HF	Own	FA416	4	H	568
	W-514-D	Ch	150	Opt	30,000		10,300	10.00x20	10.00x20	Cum	JT6B	6-4½x5	401	D	175-2500	407	Own	MT514	5	1	Own	RA514	HF	Own	FA514	4	H	568
	W-515-D	Ch	150	Opt	34,000		12,800	11.00x20	11.00x20	Cum	JT6B	6-4½x5	401	D	175-2500	407	Own	MT515	5	1	Own	RA515	HF	Own	FA515	4	A	765
	W-516	Ch	152	Opt	32,000		10,740	12.00x22.5	12.00x22.5	Int	RD450	6-4⅝x5	450	G	182-3000	388	Own	MT516	5	1	Own	RA516	HF	Own	FA516	4	H	568
	W-516-DR	Ch	152	Opt	32,000		11,140	12.00x22.5	12.00x22.5	Int	RD450	6-4⅝x5	450	G	182-3000	388	Own	MT516	5	1	Own	RA516DR	DF	Own	FA516DR	4	H	568
	W-614	Ch	150	Opt	32,000		12,200	11.00x20	11.00x20	Cont	R6513	6-4⅞x53⅝	513	G	192-2800	424	Own	MT614	5	1	Own	RA6 4	HF	Own	FA614	4	H	570
	W-616	Ch	152	Opt	36,000		11,180	12.00x22.5	12.00x22.5	Int	RD501	6-4½x5¼	501	G	212-3000	444	Own	MT616	5	1	Own	RA6 6	HF	Own	FA616	4	H	606
	W-616-DR	Ch	152	Opt	36,000		11,380	12.00x22.5	12.00x22.5	Int	RD501	6-4½x5¼	501	G	212-3000	444	Own	MT6 6	5	1	Own	RA6 6DR	DF	Own	FA616DR	4	H	630
	W-814	Ch	150	Opt	36,000		12,600	11.00x20	11.00x20	Cont	R6572	6-4⅞x53⅝	572	G	220-2800	464	Own	MT814	5	1	Own	RA8 4	HF	Own	FA814	4	H	689
	W-824	Ch	150	Opt	36,000		12,800	11.00x20	11.00x20	Cont	R6572	6-4⅞x53⅝	572	G	220-2800	464	Own	MT824	5	1	Own	RA824	DF	Own	FA824	4	H	678
	W-815	Ch	150	Opt	36,000		12,600	11.00x20	11.00x20	Cont	R6602	6-4⅞x53⅝	602	G	232-2800	484	Own	MT815	5	1	Own	RA815	HF	Own	FA815	4	H	606
	W-825	Ch	150	Opt	36,000		12,800	11.00x20	11.00x20	Cont	R6602	6-4⅞x53⅝	602	G	232-2800	484	Own	MT825	5	1	Own	RA825	DF	Own	FA825	4	H	678
	W-816	Ch	158	Opt	36,000		14,100	12.00x20	12.00x20	Cum	H6B	6-4⅞x6	672	D	160-1800	512	Own	MT816	5	1	Own	RA8 6	HF	Own	FA816	4	A	689
	W-826	Ch	158	Opt	36,000		14,300	12.00x20	12.00x20	Cum	H6B	6-4⅞x6	672	D	160-1800	512	Own	MT826	5	1	Own	RA826	DF	Own	FA826	4	A	678
	50-50-H	Ch	144	Opt	36,000		11,200	14.00x20	10.00x20	Int	RD450	6-4⅝x5	450	G	182-3000	388	Own	MT50	5	1	Own	RA50	HF	Own	FA50	4	H	690
	18-34-AF	Ch	187	Opt	52,000		15,060	14.00x20	10.00x20	Int	RD501	6-4½x5¼	501	G	212-3000	444	Own	MT18	5	1	Tim	SLHD	HF	Own	FA18	6	A	1052

For Directory of the Heavy Duty Truck Manufacturers listed above, see page 53.

(For Abbreviations and References, see next page)

HEAVY DUTY AND OFF-HIGHWAY TRUCKS—*concluded*

MAKE AND MODEL	Type	WHEEL-BASE		WEIGHTS			TIRES		ENGINE						TRANSMISSION			REAR AXLE		FRONT AXLE		No. of Driving Wheels	SERVICE BRAKES	
		Minimum Standard	Maximum Standard	G.V.W.	G.C.W.	Chassis with Cab and Body	Front	Rear—Dual Unless Noted	Make and Model	No. of Cylinders—Bore and Stroke	Displacement	Fuel Used	Max. Brake. Hp. at R.P.M.	Torque (Lb. Ft.)	Make and Model	Forward Speeds	Reverse Speeds	Make and Model	Gear and Type	Make and Model	Actuation	Total Lining Area (Sq. In.)
Oshkosh—Cont'd W-316-D	Ch	152	Opt	28,000		9,520	10.00x22.5	10.00x22.5	Cum C160	6-4 1/2x5	464	D	160-2500	377	Own MT316	5	1	Own RA316	HF	Own FA316	4	H	537
W-316-F	Ch	152	Opt	28,000		9,310	10.00x22.5	10.00x22.5	Int RD501	6-4 1/2x5 1/4	501	G	212-3000	444	Own MT316	5	1	Own RA316	HF	Own FA316	4	H	537
FT-817-W	Ch	175	Opt	28,000		12,340	10.00x20	10.00x20	Wau 145GZ	6-5 3/8x6	817	G	275-2800	630	Own MT817	5	1	Own RA817W	HF	Own FA817W	4	H	510
FT-1091-HS	Ch	164	Opt	36,000		15,020	11.00x20	11.00x20	HS 6'82FE	6-5 3/8x7	1091	G	324-2200	945	Own MT1091	5	1	Own RA1091	HF	Own FA1091	4	A	765
W-516-R	Ch	162	Opt	32,000		10,960	11.00x20	11.00x20	Int RD450	6-4 3/8x5	450	G	182-3000	388	Own MT516	5	1	Own RA516	HF	Own FA516	4	H	568
W-1700-15C	Ch	160	Opt	34,000		12,300	12.00x70	12.00x20	Cont R6513	6-4 1/2x5 3/8	513	G	192-2800	424	Own MT1700	5	1	Own RA1700	HF	Own FA1700	4	H	570
W-1700-15CR	Ch	160	Opt	34,000		12,300	12.00x20	12.00x20	Cont R6513	6-4 1/2x5 3/8	513	G	192-2800	424	Own MT1700	5	1	Own RA1700R	DF	Own FA1700R	4	H	568
W-819	Ch	158	Opt	40,000		14,125	12.00x20	12.00x20	Wau 145GZ	6-5 3/8x6	817	G	265-2600	630	Own MT819	5	1	Own RA819	HF	Own FA819	4	A	678
W-829	Ch	158	Opt	40,000		14,625	12.00x20	12.00x20	Wau 145GZ	6-5 3/8x6	817	G	265-2600	630	Own MT829	5	1	Own RA829	DF	Own FA829	4	A	678
W-827-6x6	Ch	187	Opt	45,000	90,000	19,500	11.00x20	11.00x20	Cum HRF6B	6-5 1/2x6	743	D	190-2000	580	Own MT906	4	1	Tim SQD	DF	Own FA827	6	A	.....
WA-1600-6x6	Ch	216	Opt	65,000	130,000	23,200	11.00x24	11.00x24	Cum NH220	6-5 1/2x6	743	D	220-2100	606	Own MT1600	4	1	Tim 4600 Ser.	DF	Own FA1600	6	A	.....
W-2802	Ch	.....	.....	120,000	.....	.....	18.00x25	18.00x25	Int UDT817	6-5 3/8x6	817	D	385-2100	1032	All CBT5640	3	1	Own R2800	PF	Own	4	A	.....
W-3000	Ch	.....	.....	.....	.....	.....	18.00x25	18.00x33	Cum NVH525	12-5 1/2x6	1496	D	525-2100	.....	All CLBT5940	6	2	Own R3000	PF	Own	4	A	.....
Roo D-630	Ch	158	236	42,000		11,445	9.00x20	9.00x20	Own OV207	8-3 7/8x4 1/2	390	G	207-3400	354	Ful 5A65	5	1	Tim SLHD	HhF	Tim FD900	4	A	992
D-730	Ch	158	236	46,000		12,730	10.00x20	10.00x20	Own OV207	8-3 7/8x4 1/2	390	G	207-3400	354	Ful 5A65	5	1	Eat 38DP	SF	Tim FE900	4	A	1189
D-633	Ch	134	236	42,000		12,005	9.00x20	9.00x20	Own OV207	8-3 7/8x4 1/2	390	G	204-3400	354	Ful R46	8	2	Tim SLHD	HF	Tim FD900	4	A	862
DC-633	Ch	132	.....	42,000		12,190	9.00x20	9.00x20	Own OV207	8-3 7/8x4 1/2	390	G	207-3400	354	Ful R46	8	2	Tim SLHD	HF	Tim FD900	4	A	862
D-733	Ch	134	.....	45,000		12,990	10.00x20	10.00x20	Own OV207	8-3 7/8x4 1/2	390	G	207-3400	354	Ful R46	8	2	Eat 38DS	SF	Tim FD900	4	A	1189
C-430	Ch	150	.....	42,000		10,750	9.00x20	9.00x20	Own OH170	6-4 1/4x4 1/2	331	G	170-3400	297	Cla 300V	5	1	Tim SLHD	HF	Tim FD901	4	H	938
C-436	Ch	150	.....	47,000		11,360	11.00x20	11.00x20	Own OH170	6-4 1/4x4 1/2	331	G	170-3400	297	Cla 300V	5	1	Tim SLHD	HF	Tim 27461	4	A	914
C-440	Ch	150	.....	43,000		12,575	9.00x20	9.00x20	Own OH170	6-4 1/4x4 1/2	331	G	170-3400	297	Cla 300V	5	1	Tim SLD	HDF	Tim F2090	6	A	908
C-540	Ch	150	.....	50,000		13,395	10.00x20	10.00x20	Own OH185	6-4 1/4x4 1/2	362	G	185-3400	320	Cla 300V	5	1	Tim SQD	HDF	Tim F233	6	A	1028
C-530	Ch	155	.....	46,000		12,287	10.00x20	10.00x20	Own OH170	6-4 1/4x4 1/2	331	G	170-3400	297	Cla 300V	5	1	Eat 36M	SF	Tim FE900	4	A	1189
C-536	Ch	155	.....	50,000		12,567	11.00x20	11.00x20	Own OH170	6-4 1/4x4 1/2	331	G	170-3400	297	Cla 300V	5	1	Eat 36M	SF	Tim 27461	4	A	1165
E-630D	Ch	180 1/2	243 1/2	42,000		14,095	9.00x20	9.00x20	Cum NH180	6-4 7/8x6	672	D	180-2100	504	Spi 6452	5	1	Tim SLHD	HF	Tim FD901	4	A	862
E-632D	Ch	180 1/2	243 1/2	47,000		14,155	9.00x20	9.00x20	Cum NH180	6-4 1/4x6	672	D	180-2100	504	Spi 6452	5	1	Tim SLHD	HF	Tim FE900	4	A	862
E-730D	Ch	189 1/2	243 1/2	48,000		15,140	10.00x20	10.00x20	Cum NH180	6-4 7/8x6	672	D	180-2100	504	Spi 6452	5	1	Eat 38DS	SF	Tim FE900	4	A	1204
E-732D	Ch	189 1/2	243 1/2	52,000		15,340	10.00x20	10.00x20	Cum NH180	6-4 7/8x6	672	D	180-2100	504	Spi 6452	5	1	Eat 38DS	SF	Shu FE15	4	A	1215
E-830D-OH	Ch	189 1/2	243 1/2	80,000		17,310	11.00x22	11.00x22	Cum NH180	6-4 7/8x6	672	D	180-2100	504	Ful 5C72	5	1	Eat 42M	HDF	Shu FE15	4	A	1215
C-432	Ch	150	.....	43,000		11,040	9.00x20	9.00x20	Own OH170	6-4 1/4x4 1/2	331	G	170-3400	297	Cla 300V	5	1	Tim SLHD	HF	Tim FE900	4	A	862
E-633D	Ch	180 1/2	.....	42,000		14,190	9.00x20	9.00x20	Cum NH180	6-4 7/8x6	672	D	180-2100	504	Spi 6452	5	1	Tim SLHD	HF	Tim FD901	4	A	862
DCL-633D	Ch	156	.....	43,000		13,900	9.00x20	9.00x20	Cum NH180	6-4 7/8x6	672	D	180-2100	504	Spi 6453	5	1	Tim SLHD	HF	Tim FE900	4	A	862
E-733D	Ch	189 1/2	.....	48,000		15,460	10.00x20	10.00x20	Cum NH180	6-4 7/8x6	672	D	180-2100	504	Spi 6452	5	1	Eat 38DS	SF	Tim FE900	4	A	1215
DCL-733D	Ch	154	.....	48,000		15,355	10.00x20	10.00x20	Cum NH180	6-4 7/8x6	672	D	180-2100	504	Ful R960	10	2	Eat 38DS	SF	Shu FE11	4	A	1151
C-510	Ch	150	185	30,000		9,400	10.00x20	10.00x20	Own OH170	6-4 1/4x4 1/2	331	G	170-3400	297	Spi 3152	5	1	Tim QT240	DF	Tim F2090	4	A	656
C-512	Ch	150	185	32,000		9,400	10.00x20	10.00x20	Own OH170	6-4 1/4x4 1/2	331	G	170-3400	297	Spi 3152	5	1	Tim QT240	DF	Tim F233	4	A	656
Walter FDB	Ch	138	150	36,000		.....	11.00x24	11.00x24	Cum NH195	6-4 7/8x6	672	D	195-.....	535	Own FA	6	2	Own FCC	PRF	Own FXR	4	A	890
FDR	Ch	138	150	42,000		.....	12.00x24	12.00x24	Cum NH195	6-4 7/8x6	672	D	195-.....	535	Own FA	6	2	Own FCR	PRF	Own FXR	4	A	890
ACV	Ch	126	150	66,000		.....	14.00x24	14.00x24	Cum NHB600	6-5 1/2x6	743	D	200-.....	540	Own AV	6	2	Own WB	PRF	Own UB	4	A	1020
ACU	Ch	126	150	54,000		.....	13.00x24	13.00x24	Cum NHRS6B	6-5 1/2x6	743	D	320-.....	865	Own AV	6	2	Own USB	PRF	Own UB	4	A	890
Willys F4-134-4WD	Pu	118	118	6,000		3,200	7.00x16	7.00x16S	Own F4134	4-3 1/2x4 5/8	134	G	72-4000	114	WG T90C	3	1	Spi 53-2	Hs	Spi 25	4	H	176
F4-134-4WD	St	118	118	6,000		3,365	7.00x16	7.00x16S	Own F4134	4-3 1/2x4 5/8	134	G	72-4000	114	WG T90C	3	1	Spi 53-2	Hs	Spi 25	4	H	176
FC-150	Pu	81	81	5,000		3,273	7.00x15	7.00x15S	Own F4134	4-3 1/2x4 5/8	134	G	72-4000	114	WG T90A	3	1	Spi 441	Hs	Spi 44-1F	4	H	176
FC-150	St	81	81	5,000		3,365	7.00x15	7.00x15S	Own F4134	4-3 1/2x4 5/8	134	G	72-4000	114	WG T90A	3	1	Spi 441	Hs	Spi 44-1F	4	H	176
L6-226-4WD	Pu	118	118	6,000		3,311	7.00x16	7.00x16S	Own L6226	6-3 1/8x4 5/8	226	G	105-3600	190	WG T90J	3	1	Spi 53	Hs	Spi 25	4	H	176
L6-226-4WD	St	118	118	6,000		3,476	7.00x16	7.00x16S	Own L6226	6-3 1/8x4 5/8	226	G	105-3600	190	WG T90J	3	1	Spi 53	Hs	Spi 25	4	H	176
FC-170	Pu	103 3/8	103 3/8	7,000		3,490	7.00x16	7.00x16S	Own L6226	6-3 1/8x4 5/8	226	G	105-3600	190	WG T90A	3	1	Spi 53	Hs	Spi 44F	4	H	176
FC-170	St	103 3/8	103 3/8	7,000		3,723	7.00x16	7.00x16S	Own L6626	6-3 1/8x4 5/8	226	G	105-3600	190	WG T90A	3	1	Spi 53	Hs	Spi 44F	4	H	176
FC-170	St	103 5/8	103 5/8	8,000		4,744	7.00x16	7.00x16	Own L6226	6-3 1/8x4 5/8	226	G	105-3600	190	WG T90A	3	1	Spi 70	HF	Spi 44F	4	H	231
FC-170	St	103 5/8	103 5/8	9,000		4,841	7.00x16	7.00x16	Own L6226	6-3 1/8x4 5/8	226	G	105-3600	190	WG T98A	4	1	Spi 70	HF	Spi 44F	4	H	231

ABBREVIATIONS

1—Tractor only; drive axle to trailer axle, 16 ft. 11 in.
2—Tractor only; drive axle to trailer axle, 26 ft.
3—Two used.
4—Tractor only; drive axle to trailer axle, 34 ft. 4 in.
5—Tractor only; drive axle to trailer axle, 17 ft. 4 in.
A—Air. **AH**—Air over hydraulic.
All—Allison Div.
BDTr—Bottom dump, tractor trailer.
Ch—Chassis. **Chr**—Chrysler Corp.
Cla—Clark Equipment Co.
Cont—Continental Motors Corp.
Cum—Cummins Engine Co.
D—Diesel oil.
DF—Double reduction, free floating.
Eat—Eaton Axle Co.
EDT—End dump truck.
EDTr—End dump, tractor trailer.
F—Full floating.
F-E—FWD and Eaton.
Ful—Fuller Mfg. Co.
G—Gasoline.
GM—General Motors Corp.
H—Hydraulic.
HDF—Hypoid, double reduction, free floating.
HeF—Helical gears, free floating.
HF—Hypoid, full floating.
HhF—Hypoid helical gears, full floating.
Hs—Hypoid, semi-floating.
HS—Hercules-Hall Scott.
Int—International Harvester Co.
L—LPG. **NP**—New Process.
Opt—Optional.
PF—Planetary, free floating.
PRE—Pinion and ring, full floating.
Pu—Pick-up.
R—Rigid.
S—Single **Ser**—Series.
Sf—Semi-floating.
SF—Spiral bevel, full floating.
Shu—Shuler.
Spi—Spicer Div.
St—Stake.
Tim—Timken-Detroit Axle Co.
Wau—Waukesha Motor Co.
WF—Worm, full floating.
WG—Warner Gear.

For Directory of the Heavy Duty Truck Manufacturers listed above, see page 53

1961 .... CRAWLER TRACTORS

| TRACTOR MAKE AND MODEL | HP RATING | | No. of Forward Speeds | No. of Reverse Speeds | MAXIMUM DRAWBAR PULL AT NORMAL GOVERNED ENGINE R.P.M. | | | | | | TRAVEL SPEEDS AT NORMAL GOVERNED ENGINE R.P.M. | | | | | | | | ENGINE | | | | | | | |

1961.... WHEEL TRACTORS

TRACTOR MAKE AND MODEL	GENERAL: Wheelbase (In.)	Minimum Turning Radius Outside (Ft.)	Ground Clearance (In.)	Shipping Weight with Rubber Tires (Lb.)	TREAD (In.): Minimum	TREAD (In.): Maximum	DRAWBAR: Lateral Adjustment (In.)	DRAWBAR: Height Above Ground (In.)	OVERALL DIMENSIONS: Length (In.)	OVERALL DIMENSIONS: Width (In.)	OVERALL DIMENSIONS: Height—To Highest Point (In.)	TIRE SIZE (In.): Front	TIRE SIZE (In.): Rear	H.P. RATING: Belt	H.P. RATING: Drawbar	Power Take-Off	Forward Travel Speeds at Normal Governed Engine RPM with Standard Wheels: No. of Speeds	Forward Travel Speeds at Normal Governed Engine RPM with Standard Wheels: Range (MPH)	Reverse Travel Speeds at Normal Governed Engine RPM with Standard Wheels: No. of Speeds	Reverse Travel Speeds at Normal Governed Engine RPM with Standard Wheels: Range (MPH)	ENGINE: Make and Model	ENGINE: Number of Cylinders—Bore and Stroke (In.)	BELT PULLEY: Diameter (In.)	BELT PULLEY: Face (In.)	BELT PULLEY: Normal R.P.M.	Steering Type	CAPACITIES: Cooling System (Gal.)	CAPACITIES: Fuel Tank (Gal.)	CAPACITIES: Crankcase (Qts.)	CAPACITIES: Transmission (Qts.)	CAPACITIES: Final Drive Cases (Qts.)
Allis-Chalmers																																
D-10	78¾	9½	27	2700	42	72	10½	12⅛	120½	58⅝	78	4.00/15	9/24	30.00	25.97	Op	4	1.90-13.20	1	3.33-	Own	10	4-3⅝x3⅞	8	5½	1220	FK	2	12½	5	6½	2
D-12	78¾	9½	22	2800	52	79	10½	13⅞	121½	67⅛	76½	5.00/15	10/24	30.00	25.75	Op	4	2.00-14.00	1	3.50-	Own	10	4-3⅝x3⅞	8	5½	1220	FK	2	12½	5	6½	2
D-15	87	9¾	24	4230	54	80	21	14½	130⅞	67	80⅞	5.50/16	11/26	.....	.....	St	8	1.90-16.90	2	3.30-4.70	Own	149	4-3½x3⅞	9	6⅞	1678	FK	2½	16	5	16	2
D-15-D	87	9¾	24	4355	54	80	21	14½	130⅞	67	80⅞	5.50/16	11/26	.....	.....	St	8	1.90-16.90	2	3.30-4.70	Own	D175	4-3⅝x4⅝	9	6⅞	1678	FK	2¾	16	5	16	2
D-17	93	9½	21	5280	58⅛	92½	10⅜	14⅝	140⅞	76¾	81	6.00/16	13/28	54.43	48.14	St	8	1.80-12.00	2	2.40-3.50	Own	17	4-4x4½	9	6⅞	1384	FK	3½	20¾	6	25	2½
D-17-LPG	93	9½	21	5440	53	92½	10⅜	15⅛	140⅞	76¾	81	6.00/16	13/28	53.00	47.24	St	8	1.80-12.00	2	2.40-3.50	Own	226	4-4x4½	9	6⅞	1384	FK	3½	22⅝	6	28	2½
D-17-D	95¾	9½	21	5680	58⅛	92½	10⅜	14⅝	143	76¾	81	6.00/16	13/28	53.33	47.06	St	8	1.80-12.00	2	2.40-3.50	Own	DA262	6-3⅞x4⅝	9	6⅞	1384	FK	4	20¾	6	25	2½
Brockway																																
49K	76½	10¼	20	3600	48	76	28½	16	115	63	62½	6.00/16	11/28	27.00	24.00	St	4	2.16-15.00	1	1.69-	Cont	F162	4-3⅛x4⅝	8½	6¼	1800	FK	5	12½	5	14	4
49G	76½	10¼	20	3600	48	76	28½	16	115	63	62½	6.00/16	11/28	31.75	28.00	St	4	2.16-15.00	1	1.69-	Cont	F162	4-3⅛x4⅝	8½	6¼	1800	FK	5	12½	5	14	4
49D	76½	10¼	20	3600	48	76	28½	16	115	63	62½	6.00/16	11/28	35.00	32.00	St	4	2.16-12.00	1	1.72	Cont	GD157	4-3⅝x4⅝	8½	6¼	1650	FK	5	12½	5	14	4
Case																																
430 Std 4 Whl	75¼	8¾	.....	3082	48	76	16	.....	130¼	63¼	57	6.00/16	11/24	34.00	30.00	Op	4	2.30-10.80	1	2.70	Own	G148	4-3⅝x4⅛	10¼	6	1190	FK	3	13	5	17	(1)
430 Std 4 Whl	75¼	8¾	.....	3082	48	76	16	.....	130¼	63¼	57	6.00/16	11/24	34.00	30.00	Op	4	2.30-10.80	1	2.70	Own	G188D	4-3⅛x4⅛	10¼	6	1190	FK	3	13	5	17	(1)
430 G P Ad F Whl	79½	9¾	20½	3335	48	88	16	.....	127⅜	79⅝	62	5.50/16	12.4/26	34.00	30.00	Op	4	2.30-10.80	1	2.70	Own	G148	4-3⅝x4⅛	10¼	6	1190	FK	3	13	4	28	(1)
430 G P Ad F Whl	79½	9¾	20½	3335	48	88	16	.....	127⅜	79⅝	62	5.50/16	12.4/28	34.00	30.00	Op	4	2.30-10.80	1	2.70	Own	G188D	4-3⅛x4⅛	10¼	6	1190	FK	3	13	4	28	(1)
430 G P Du F Whl	84½	7¾	20½	3335	48	88	16	.....	130	79⅝	62	5.50/16	12.4/28	34.00	30.00	Op	4	2.30-10.80	1	2.70	Own	G148	4-3⅝x4⅛	10¼	6	1190	FK	3	13	4	28	(1)
430 G P Du F Whl	84½	7¾	20½	3335	48	88	16	.....	130	79⅝	62	5.50/16	12.4/28	34.00	30.00	Op	4	2.30-10.80	1	2.70	Own	G188D	4-3⅛x4⅛	10¼	6	1190	FK	3	13	4	28	(1)
530 Std 4 Whl [2]	75¼	10	.....	3586	48	68	16	.....	116½	63¼	58	6.00/16	11/24	43.00	38.00	Op	4	2.80-13.40	1	3.30	Own	G159	4-3⅛x4⅛	9¼	6⅝	1290	FK	3½	22	4	17	(1)
530 Std 4 Whl [2]	75¼	10	.....	3586	48	68	16	.....	116½	63¼	58	6.00/16	11/24	43.00	38.00	Op	4	2.80-13.40	1	3.30	Own	G188D	4-3⅛x4⅛	9¼	6⅝	1290	FK	3½	22	4	17	(1)
530 G P Ad F Whl	79½	9¾	21½	3521	48	88	16	.....	127¾	79⅝	65	5.50/16	12.4/28	43.00	38.00	Op	4	2.80-13.40	1	3.30	Own	G159	4-3⅛x4⅛	9¼	6⅝	1290	FK	3½	22	4	28	(1)
530 G P Ad F Whl	79½	9¾	21½	3521	48	88	16	.....	127¾	79⅝	65	5.50/16	12.4/28	43.00	38.00	Op	4	2.80-13.40	1	3.30	Own	G188D	4-3⅛x4⅛	9¼	6⅝	1290	FK	3½	22	4	28	(1)
530 G P Du F Whl	84¾	7¾	21½	3521	48	88	16	.....	130	79⅝	65	5.50/16	12.4/28	43.00	38.00	Op	4	2.80-13.40	1	3.30	Own	G159	4-3⅛x4⅛	9¼	6⅝	1290	FK	3½	22	4	28	(1)
530 G P Du F Whl	84¾	7¾	21½	3521	48	88	16	.....	130	79⅝	65	5.50/16	12.4/28	43.00	38.00	Op	4	2.80-13.40	1	3.30	Own	G188D	4-3⅛x4⅛	9¼	6⅝	1290	FK	3½	22	4	28	(1)
630 Std 4 Whl [3]	79½	10¼	.....	4047	48	76	19¼	.....	124	63¼	64	6.00/16	12.4/28	52.00	44.00	Op	4	2.30-11.10	1	2.80	Own	G188	4-3⅛x4⅛	9¼	6⅝	1360	FK	4	22	4	44	(1)
630 Std 4 Whl [3]	79½	10¼	.....	4047	48	76	19¼	.....	124	63¼	64	6.00/16	12.4/28	52.00	44.00	Op	4	2.30-11.10	1	2.80	Own	G188D	4-3⅛x4⅛	9¼	6⅝	1360	FK	4	22	4	44	(1)
630 G P Ad F Whl	88	10	25	4300	54	88	17⅝	.....	134½	80¾	67	6.00/16	12.4/36	52.00	44.00	Op	4	2.30-11.10	1	2.80	Own	G188	4-3⅛x4⅛	9¼	6⅝	1360	FK	4	22	4	44	(1)
630 G P Ad F Whl	88	10	25	4300	54	88	17⅝	.....	134½	80¾	67	6.00/16	12.4/36	52.00	44.00	Op	4	2.30-11.10	1	2.80	Own	G188D	4-3⅛x4⅛	9¼	6⅝	1360	FK	4	22	4	44	(1)
630 G P Du F Whl	88	8	25	4250	52	88	17⅝	.....	139	80¾	67	6.00/16	12.4/36	52.00	44.00	Op	4	2.30-11.10	1	2.80	Own	G188	4-3⅛x4⅛	9¼	6⅝	1360	FK	4	22	4	44	(1)
630 G P Du F Whl	88	8	25	4250	52	88	17⅝	.....	139	80¾	67	6.00/16	12.4/36	52.00	44.00	Op	4	2.30-11.10	1	2.80	Own	G188D	4-3⅛x4⅛	9¼	6⅝	1360	FK	4	22	4	44	(1)
730 Std 4 Whl [4]	82¾	10½	17⅝	5459	52	58	17⅝	.....	133¾	66⅝	89	6.00/16	13/30	59.17	52.78	Op	8	1.50-15.70	2	2.00-7.20	Own	A251G	4-4x5	10½	7¼	1322	FK	7½	22	9	60	(1)
730 Std 4 Whl [4]	82¾	10½	17⅝	5595	52	58	17⅝	.....	133¾	66⅝	89	6.00/16	13/30	59.17	52.78	Op	8	1.50-15.70	2	2.00-7.20	Own	A267D	4-4½x5	10½	7¼	1322	FK	7½	22	9	60	(1)
730 G P Ad F Whl	92¼	8½	26	6131	53	82	20¼	Ad	152¾	85¼	93⅞	6.00/16	13.6/38	59.12	52.78	Op	8	1.50-15.70	2	2.00-7.20	Own	A251S	4-4x5	10½	7¼	1322	FK	7½	22	9	60	(1)
730 G P Ad F Whl	92¼	8½	26	6131	53	82	20¼	Ad	152¾	85¼	93⅞	6.00/16	13.6/38	59.12	52.78	Op	8	1.50-15.70	2	2.00-7.20	Own	A267D	4-4x5	10½	7¼	1322	FK	7½	22	9	60	(1)
730 G P Du F Whl	92¼	10½	26	6059	52	88	20¼	Ad	.....	.....	93⅞	6.00/16	13.6/38	59.12	52.78	Op	8	1.50-15.70	2	2.00-7.20	Own	A251S	4-4x5	10½	7¼	1322	FK	7½	22	9	60	(1)
730 G P Du F Whl	92¼	10½	26	6059	52	88	20¼	Ad	.....	.....	93⅞	6.00/16	13.6/38	59.12	52.78	Op	8	1.50-15.70	2	2.00-7.20	Own	A267D	4-4x5	10½	7¼	1322	FK	7½	22	9	60	(1)
830 Std 4 Whl [5]	82¾	10½	17⅝	.....	52	58	20¼	Ad	133¾	66⅝	89	6.00/16	13.30	66.68	57.54	Op	8	1.50-15.70	2	1.80-6.60	Own	A284S	4-4½x5	10½	7¼	1322	FK	7½	22	9	60	(1)
830 Std 4 Whl [5]	82¾	10½	17⅝	5671	52	58	20¼	Ad	133¾	66⅝	89	6.00/16	13/30	66.68	57.54	Op	8	1.50-15.70	2	1.80-6.60	Onn	A301D	4-4½x5	10½	7¼	1322	FK	7½	22	9	60	(1)
830 G P Ad F Whl	101¾	10½	24¼	6585	53	82	20¼	Ad	153	85¼	93⅞	6.00/16	13.6/38	66.68	57.54	Op	8	1.50-15.70	2	1.80-6.60	Own	A284S	4-4½x5	10½	7¼	1322	FK	7½	22	9	60	(1)
830 G P Ad F Whl	101¾	10½	24¼	6585	53	82	20¼	Ad	143	85¼	93⅞	6.00/16	13.6/38	66.68	57.54	Op	8	1.50-15.70	2	1.80-6.60	Own	A301D	4-4½x5	10½	7¼	1322	FK	7½	22	9	60	(1)
830 G P Du F Whl	92¼	10½	26	6295	52	88	20¼	Ad	.....	.....	93⅞	6.00/16	13.6/38	66.68	57.54	Op	8	1.50-15.70	2	1.80-6.60	Own	A284S	4-4½x5	10½	7¼	1322	FK	7½	22	9	60	(1)
830 G P Du F Whl	92¼	10½	26	6295	52	88	20¼	Ad	.....	.....	93⅞	6.00/16	13.6/38	66.68	57.54	Op	8	1.50-15.70	2	1.80-6.60	Own	A301D	4-4½x5	10½	7¼	1322	FK	7½	22	9	60	(1)
930 Std 4 Whl [6]	83½	9½	13¼	7575	57	67	43½	Ad	141	84	91⅝	7.50/18	14/34	83.49	75.49	Op	6	2.70-14.80	1	3.40	Own	A401D	6-4¼x5	11¾	8¼	1007	FK	10½	30	14	64	(1)
Caterpillar																																
DW-15	121½	41½	15½	21530	.....	.....	.....	.....	.....	.....	200⅝	107¼	111	12/20	26.5/25	.....	.....	.....	5	2.70-29.10	1	4.10	Own	D362F	6-5¼x6½	.....	.....	.....	.....	20	75	33	82	(1)
DW-20	128	.....	18	27370	.....	.....	.....	.....	.....	.....	211⅜	118	125⅜	14/24	29.5/29	.....	.....	.....	5	3.20-27.90	1	4.10	Own	D337F	6-5¼x6½	.....	.....	.....	.....	23½	130	33	108	(1)
619	269	30	16	32260	.....	.....	.....	.....	.....	.....	179½	108	107	N	26.5/25	.....	.....	.....	6	3.00-30.20	2	3.50-7.10	Own	.....	6-5¼x6½	.....	.....	.....	.....	20	85	33	56	.....
DW-21	307	36	19	#0520	.....	.....	.....	.....	.....	.....	188	141	137	N	29.5/29	.....	.....	.....	5	2.60-22.60	1	3.30	Own	DW21	6-5½x6½	.....	.....	.....	.....	23½	120	33	108	(1)
Cockshutt																																
540	81	12¼	19½	4295	48	76	8	Ad	120	66	60	5.50/16	11/28	.....	.....	St	6	1.70-12.10	2	2.70-5.20	Cont	F162	4-3⅞x4⅝	9	6½	1084	DA	3	13½	4	25	(1)
550-G	87	14¼	17	4500	53⅝	92	12	Ad	132	74	74½	5.50/16	11/38	.....	.....	Op	6	1.85-13.40	2	3.26-6.22	Her	GO198	4-3¾x4½	10	6½	1195	DFS	4½	19¼	4¾	25	(1)
550-D	87	14¼	17	4560	53⅝	92	12	Ad	132	74	74½	5.50/16	11/38	40.18	35.10	Op	6	1.85-13.40	2	3.26-6.22	Her	DD198	4-3¾x4½	10	6½	1195	DFS	4½	19¼	4¾	25	(1)
560	87¾	14¼	17	5036	53½	112	11½	Ad	138	72½	78	6.00/16	14/34	50.45	46.65	Op	6	1.81-13.20	2	3.19-6.08	Per	4270D	4-4¼x4¾	10	8½	1195	DFS	3½	26½	8½	38	(1)
570 Super	87¾	14¼	17	6300	53½	112	11½	Ad	138	72½	78	6.00/16	14/34	.....	.....	Op	6	1.81-13.20	2	3.19-6.08	Her	D339	6-4x4½	10	8½	1195	DFS	4¾	26½	8	38	.....
570-G	87¾	14¼	17	6320	53½	112	11½	Ad	138	72½	78	6.00/16	14/34	.....	.....	Op	6	1.81-13.20	2	3.19-6.08	Her	GO298	6-3¾x4½	10	8½	1195	DFS	4¾	26½	8	38	(1)
570-D	87¾	14¼	17	6300	53½	112	11½	Ad	138	72½	78	6.00/16	14/34	63.66	52.97	Op	6	1.81-13.20	2	3.19-6.08	Her	DD298	6-3¾x4½	10	8½	1195	DFS	4¾	26½	8	38	(1)
Deere, John																																
1010-U	77¼	8½	14	3035	40½	55	6¾	11½	125½	53½	64⅞	5.00/15	9/24	35.00	.....	Op	5	1.74-11.20	1	2.54	Own	1010	4-3½x3	9¼	6¾	1185	DA	2¾	12	5	10	2½
1010-U	77¼	8½	14	3035	40½	55	6¾	11½	125½	53½	64⅞	5.00/15	9/24	35.00	.....	Op	5	1.74-11.20	1	2.54	Own	1010	4-3⅝x3½	9¼	6¾	1185	DA	2¾	12	5	10	2½
1010-RS	70	.....	21	3085	40½	55	12	Ad	118	53½	72¼	5.00/15	9/24	35.00	.....	Op	5	1.74-11.20	1	2.54	Own	1010	4-3½x3	9¼	6¾	1185	DA	2¾	12	5	10	3½
1010-RS	70	.....	21	3085	40½	55	12	Ad	118	53½	72¼	5.00/15	9/24	35.00	.....	Op	5	1.74-11.20	1	2.54	Own	1010	4-3⅝x3½	9¼	6¾	1185	DA	2¾	12	5	10	3½
2010-RU	81½	9½	19⅝	4600	50	79½	6	Ad	139¾	71	76¼	6.00/16	12.4/28	45.00	.....	Op	8	2.03-14.67	3	2.25-6.86	Own	2010	4-3⅝x3½	12	8½	961	DA	3	18	5	32	8
2010-RU	81½	9½	19⅝	4600	50	79½	6	Ad	139¾	71	76¼	6.00/16	12.4/28	45.00	.....	Op	8	2.03-14.67	3	2.25-6.86	Own	2010	4-3⅞x3½	12	8½	961	DA	3	18	5	32	8

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1961 WHEEL TRACTORS *(Continued)*

TRACTOR MAKE AND MODEL	GENERAL: Wheelbase (In.)	Minimum Turning Radius Outside (Ft.)	Ground Clearance (In.)	Shipping Weight with Rubber Tires (Lb.)	TREAD (In.): Minimum	TREAD (In.): Maximum	DRAWBAR: Lateral Adjustment (In.)	DRAWBAR: Height Above Ground (In.)	OVERALL DIMENSIONS: Length (In.)	OVERALL DIMENSIONS: Width (In.)	OVERALL DIMENSIONS: Height—To Highest Point (In.)	TIRE SIZE (In.): Front	TIRE SIZE (In.): Rear	H.P. RATING: Belt	H.P. RATING: Drawbar	Power Take-Off	Forward Travel Speeds at Normal Governed Engine RPM with Standard Wheels: No. of Speeds	Forward Travel Speeds at Normal Governed Engine RPM with Standard Wheels: Range (MPH)	Reverse Travel Speeds at Normal Governed Engine RPM with Standard Wheels: No. of Speeds	Reverse Travel Speeds at Normal Governed Engine RPM with Standard Wheels: Range (MPH)	ENGINE: Make and Model	ENGINE: Number of Cylinders—Bore and Stroke (In.)	BELT PULLEY: Diameter (In.)	BELT PULLEY: Face (In.)	BELT PULLEY: Normal R.P.M.	Steering Type	CAPACITIES: Cooling System (Gal.)	CAPACITIES: Fuel Tank (Gal.)	CAPACITIES: Crankcase (Qts.)	CAPACITIES: Transmission (Qts.)	CAPACITIES: Final Drive Cases (Qts.)
Ford—Cont'd 881-D	74½	8½	21⅝	3271	52	76	17¾	13¼	120¾	63⅞	78½	6.00/16	12/28	41.36	33.91	St	10	1.06-16.36	2	3.16-4.67	Own	172	4-3⅞x3½	9	6½	1298	AA	3¾	17	4	11½	11
941	85⅛	7½	28⅛		56	84	17½	17⅞	132⅛	71½	65½	5.50/16	12/28	46.53	42.12	St	4	3.67-13.54	1	3.84	Own	172	4-3⅞x3½	9	6½	1360	AA	3¾	17		6	8
941-L	85⅛	7½	28⅛		56	84	17½	17⅞	132⅛	71½		5.50/16	12/28			St	4	3.67-13.54	1	3.84	Own	172	4-3⅞x3½	9	6½	1360	AA	3¾			6	8
941-D				3436	56	84					88⅛	5.50/16	12/28	41.53	37.75		4	3.67-13.54	1	3.84	Own	172	4-3⅞x3½					3¾	17	5	6	8
951	85⅛	7½	28⅛	3636	56	84	17½	17⅞	132⅛	71½	65½	5.50/16	12/28	50.20	43.28	St	5	2.30-11.95	1	3.93	Own	172	4-3⅞x3½	9	6½	1278	Ped	3¾	17	5	8	8
951-L	85⅛	7½	28⅛		56	84	17½	17⅞	132⅛	71½		5.50/16	12/28			St	5	2.30-11.95	1	3.93	Own	172	4-3⅞x3½	9	6½	1279	Ped	3¾			8	8
951-D	85⅛	7½	28⅛	3540	56	84	17½	17⅞	132⅛	71½	88⅛	5.50/16	12/28	44.51	38.90	St	5	2.30-11.95	1	3.93	Own	172	4-3⅞x3½	9	6½	1279	Ped	3¾	17	5	8	8
961	85⅛	7½	28⅛	3424	56	84	17½	17⅞	132⅛	71½	65½	5.50/16	12/28	50.20	43.28	St	5	2.30-11.95	1	3.93	Own	172	4-3⅞x3½	9	6½	1279	Ped	3¾	17	5	8	8
961-L	85⅛	7½	28⅛		56	84	17½	17⅞	132⅛	71½		5.50/16	12/28			St	5	2.30-11.95	1	3.93	Own	172	4-3⅞x3½	9	6½	1279	Ped	3¾			8	8
961-D	85⅛	7½	28⅛	3528	56	84	17½	17⅞	132⅛	71½	88⅛	5.50/16	12/28	44.51	38.90	St	5	2.30-11.95	1	3.93	Own	172	4-3⅞x3½	9	6½	1279	Ped	3¾	17	5	8	8
971	85⅛	7½	28⅛	3447	56	84	17½	17⅞	132⅛	71½	78½	5.50/16	12/28	46.16	37.22	St	10	1.06-16.34	2	3.15-4.67	Own	172	4-3⅞x3½	9	6½	1298	Ped	3¾	17	4	11½	11
971-L	85⅛	7½	28⅛	3624	56	84	17½	17⅞	132⅛	71½		5.50/16	12/28	43.61	34.97	St	10	1.06-16.34	2	3.15-4.67	Own	172	4-3⅞x3½	9	6½	1298	Ped	3¾	19¼	4	11½	11
971-D	85⅛	7½	28⅛	3556	56	84	17½	17⅞	132⅛	71½	86⅛	5.50/16	12/28	41.36	33.91	St	10	1.06-16.34	2	3.15-4.67	Own	172	4-3⅞x3½	9	6½	1298	Ped	3¾	19¼	4		11
981	85⅛	7½	28⅛	3502	56	84	17½	17⅞	132⅛	71½	57½	5.50/16	12/28	46.16	37.22	St	10	1.06-16.34	2	3.15-4.67	Own	172	4-3⅞x3½	9	6½	1298	Ped	3¾	17	4	11½	11
981-L	85⅛	7½	28⅛	3634	56	84	17½	17⅞	132⅛	71½		5.50/16	12/28	43.61	34.97	St	10	1.06-16.34	2	3.15-4.67	Own	172	4-3⅞x3½	9	6½	1298	Ped	3¾	19¼	4	11½	11
981-D	85⅛	7½	28⅛	3611	56	84	17½	17⅞	132⅛	71½		5.50/16	12/28	41.36	33.91	St	10	1.06-16.34	2	3.15-4.67	Own	172	4-3⅞x3½	9	6½	1298	Ped	3¾	17	4	11½	11
1811	81½	11	11½	3789	56	72	Fx	13¼	123½	70½	57½	7.50/16	14.9/24	46.16	37.22	Op	10	1.06-16.04	2	3.16-4.68	Own	172	4-3⅞x3½	9	6½	1298	SA	3¾	17	4	11½	11
1811-D	81½	11	11½	3955	56	72	Fx	14¼	123½	70½	78½	7.50/16	14.9/24	41.36	33.91	Op		1.06-16.04	2	3.16-4.68	Own	172	4-3⅞x3½	9	6½	1298	SA	3¾	17	4	11½	11
1821	81½	11	13¾	3790	52	76			128	63⅞	57⅝	7.50/16	12/28	46.53	42.12	Op	4	3.67-13.56	1	3.85	Own	172	4-3⅞x3½	9	6½	1279	SA	3¾	17	5	6	11
1821-D	74½	11	13½	3918	52	76			128	63⅞	57⅝	7.50/16	12/28	41.53	37.75	Op	4	3.67-13.56	1	3.85	Own	172	4-3⅞x3½	9	6½	1279	SA	3¾	17	5	6	11
1841	81½	11	13¾	4002	52	76	17¾	13¼	128	63⅞	57⅝	7.50/16	12/28	46.53	42.12	Op	4	3.67-13.56	1	3.85	Own	172	4-3⅞x3½	9	6½	1279	SA	3¾	17	5	6	11
1841-D	81½	11	13⅜	4130	52	76	17¾	13¼	128	63⅞	57⅝	7.50/16	12/28	41.53	37.75	Op	4	3.67-13.56	1	3.85	Own	172	4-3⅞x3½	9	6½	1279	SA	3¾	17	5	6	11
1871	81½	11	11½	3996	56	72	Fx	13¼	128½	70½	57½	7.50/16	14.9/24	46.16	37.22	St	10	1.06-16.04	2	3.16-4.68	Own	172	4-3⅞x3½	9	6½	1298	SA	3¾	17	4	11½	11
1871-D	81½	11	11½	4162	56	72		13¼	128½	70½	78½	7.50/16	14.9/24	41.36	33.91	St		1.06-16.04	2	3.16-4.68	Own	172	4-3⅞x3½	9	6½	1298	SA	3¾	17	4	11½	11
1881	81½	11	11½	4028	56	72	Fx	13¼	128½	70½	57½	7.50/16	14.9/24	46.16	37.22	St	10	1.06-16.04	2	3.16-4.68	Own	172	4-3⅞x3½	9	6½	1298	SA	3¾	17	4	11½	11
1881-D	81½	11	11½	4194	56	72	Fx	13¼	128½	70½	78½	7.50/16	14.9/24	41.36	33.91	St	10	1.06-16.04	2	3.16-4.68	Own	172	4-3⅞x3½	9	6½	1298	SA	3¾	17	4	11½	11
Fordson FPM-U14	80	12	19½	5158	58	62	27½	Ad	130½	85	79	7.50/16	14/30	47.65	43.59	St	6	1.91-13.84	2	2.74-5.12	Fo		4-3⅛x4½	8½	6⅝	1400	AA	3½	18	7¼	21¾	43½
FPM-14	80	12	19½	5544	58	62	27½	Ad	130½	85	79	7.50/16	14/30	47.65	43.59	St	6	1.91-13.84	2	2.74-5.12	Fo		4-3⅛x4½	8½	6⅝	1400	AA	3½	18	7¼	21¾	43½
FPM-72	88½		24½	5550	52	72	27½	Ad	136	85	79	5.50/16	12/38	47.65	43.59	St	6	2.35-14.93	2	3.18-5.71	Fo		4-3⅛x4½	8½	6⅝		Ped	3½	18	7¼	21¾	43½
FPM-12	80	12		5572	52	72	27½	Ad	130½	85	79	7.50/16	12/38	47.65	43.59		6	2.35-14.93	2	3.18-5.71	Fo		4-3⅛x4½	8½	6⅝	1400	AA		18			43½
International-Harvester Farmall Cub	69¼	8¾	20	1600	40	56	22¾	Ad	99½	48⅝	63	4.00/12	8.3/24	10.75	10.08	Op	3	2.40- 7.30	1	2.70	Own	C60	4-2⅝x2¾	7⅝	4¾	1487	FK	2½	7½	3	1¾	1¾
140	71	8½	22	2720	40	68	18¾	Ad	107	56	82	5.00/15	9.5/24	24.27	22.18	Op	4	1.90-12.80	1	3.10	Own	C123	4-3½x4	8½	6	1157	FK	3¾	11	5	5	3
140HC	71½	8¾	27	2870	48	68	18¾	Ad	115	61	89	4.00/19	9.5/36	24.00	22.00	Op	4	2.60-16.80	1	4.00	Own	C123	4-3½x4	8½	6	1157	FK	3¾	11	5	5	3
240	82	7½	23¼	3340	48	80	18¾	Ad	123	80½	88	5.00/15	11.2/36	32.22	28.87	Op	4	2.20-14.70	1	3.50	Own	C123	4-3½x4	7	5¾	1652	SA	3¾	16	5	20	N
340	80	7½	24½	4250	48	92	18	Ad	122	83½	91	5.00/15	12.4/36	36.12	32.68	Op	10	1.20-16.60	2	1.50-2.30	Own	C135	4-3¼x4¼	11	7½	1063	SA	4¾	15	5	40	N
340D	80	7½	24½	4390	48	92	18	Ad	122	83½	91	5.00/15	12.4/36	40.70	36.90	Op	10	1.20-16.60	2	1.50-2.30	Own	D166	4-3½x3⅝	11	7½	1063	SA	4¾	15	7	40	N
460	95	9	25½	4970	48	93	18	Ad	139½	83½	95	5.50/16	12.4/38	51.63	47.24	Op	10	1.70-16.80	2	2.20-3.20	Own	C221	6-3⅝x3½	11	7½	1059	SA	4¾	33	9	40	N
460D	95	9	25½	5150	48	93	18	Ad	139½	83½	95	5.50/16	12.4/38	52.19	47.99	Op	10	1.70-16.80	2	2.20-3.20	Own	D236	6-3⅛x3½	11	7½	1059	SA	5¾	33	9	40	N
460HC	100½	12	34	5620	62	74	30	Ad	155	85⅝	108⅝	6.00/20	12.4/38	51.50	47.00	Op	10	1.70-15.90	2	2.10-3.10	Own	C221	6-3⅝x3½	11	7½	1059	FK	4¾	33	9	40	6
460D-HC	100½	12	34	5800	62	74	30	Ad	155	85⅝	108⅝	6.00/20	12.4/38	51.50	47.00	Op	10	1.70-15.90	2	2.10-3.10	Own	D236	6-3⅛x3½	11	7½	1059	FK	5¾	33	9	40	6
560	96	8⅝	26¼	5790	50	94	18	Ad	141	84½	99½	6.00/16	13.6/38	65.25	59.47	Op	10	1.50-16.60	2	1.90-2.80	Own	C263	6-3⅝x4½	11	7½	1046	SA	4¾	33	9	64	N
560D	96	8⅝	26¼	5960	50	94	18	Ad	141	84½	99½	6.00/16	13.6/38	62.60	58.67	Op	10	1.50-16.60	2	1.90-2.80	Own	D282	6-3⅛x4½	11	7½	1046	SA	5¾	33	9	64	N
560HC	100¾	12	34	6430	62	74	30	Ad	155½	85⅝	112½	6.00/20	13.6/38	65.00	59.00	Op	10	1.40-16.00	2	1.80-2.70	Own	C263	6-3⅝x4½	11	7½	1046	FK	4¾	33	9	64	6
560D-HC	100¾	12	34	6600	62	74	30	Ad	155½	85⅝	112½	6.00/20	13.6/38	62.00	57.00	Op	10	1.40-16.00	2	1.80-2.70	Own	D282	6-3⅛x4½	11	7½	1046	FK	5¾	33	9	64	6
International Cub Lo-Boy	62	7½	14	1600	40	56	22¾	Ad	96½	48⅝	56	4.00/12	8.3/24	10.75	10.08	Op	3	2.40- 7.30	1	2.70	Own	C60	4-2⅝x2¾	7⅝	4¾	1487	FK	2½	7½	3	1¾	1¾
140	71	8½	22	2720	40	68	18¾	Ad	107	56	82	5.00/15	9.5/24	24.27	22.18	Op	4	1.90-12.80	1	3.10	Own	C123	4-3½x4	8½	6	1157	FK	3¾	11	5	5	3
240U	75	10½	10	3140	48	76	18¾	Ad	116	63	58	5.50/16	12.4/24	32.24	28.91	Op	4	1.80-11.80	1	2.80	Own	C123	4-3½x4	7	5¾	1652	FK	3¾	16	5	20	N
B-275D	74½	10¾	13	3600	48	76	12	Ad	113	63¾	59½	5.50/16	12.4/28	34.06	30.94	Op	8	1.60-14.10	2	2.30-6.30	Own	BD144A	4-3⅜x4	9½	6⅝	1310	FK	2¾	10¼	6½	2½	20
340U	73½	9½	11¾	3970	48	76	18	Ad	116	63	60	5.50/16	12.4/28	35.24	32.41	Op	10	1.20-16.10	2	1.50-2.20	Own	C135	4-3¼x4¼	11	7½	1063	FK	3¾	15¼	5	40	N
340D-U	73½	9½	11¾	4110	48	76	18	Ad	116	63	60	5.50/16	12.4/28	40.70	36.90	Op	10	1.20-16.10	2	1.50-2.20	Own	D166	4-3½x3⅝	11	7½	1063	FK	4¾	15	7	40	N
340 Ind.	73	9½	14	4160	48	76	26	Ad	117¾	63	60	5.50/16	12.4/28	35.24	32.41	Op	10	1.20-16.10	2	1.50-2.20	Own	C135	4-3¼x4¼	11	7½	1063	FK	3¾	15	5	40	N
340D-Ind.	73	9½	14	4300	48	76	26	Ad	117¾	63	60	5.50/16	12.4/28	40.70	36.90	Op	10	1.20-16.10	2	1.50-2.20	Own	D166	4-3½x3⅝	11	7½	1063	FK	4¾	15	7	40	N
460U	78¾	10½	12¾	4410	48	76	18	Ad	128	63	61	6.00/16	13.6/28	51.64	48.15	Op	10	1.20-16.50	2	1.50-2.30	Own	C221	6-3⅝x3½	11	7½	1059	FK	5½	23	9	40	N
460D-U	78¾	10½	12¾	4580	48	76	18	Ad	128	63	61	6.00/16	13.6/28	52.43	48.16	Op	10	1.20-16.50	2	1.50-2.30	Own	D236	6-3⅛x3½	11	7½	1059	FK	5¾	23	9	40	N
460 Or.	77¾	10½	12¾	4860	56		18	Ad	130½	78½	61	6.00/16	13.6/28	51.64	48.15	Op	10	1.20-16.50	2	1.50-2.30	Own	C221	6-3⅝x3½	11	7½	1059	FK	5½	23	9	40	N
460D-Or.	77¾	10½	12¾	5030	56		18	Ad	130½	78½	61	6.00/16	13.6/28	52.43	48.16	Op	10	1.20-16.50	2	1.50-2.30	Own	D236	6-3⅛x3½	11	7½	1059	FK	5¾	23	9	40	N
460 Ind.	78¼	10½	15	4600	52	76	26	Ad	129¾	63	61	6.00/16	13.6/28	51.64	48.15	Op	10	1.20-16.50	2	1.50-2.30	Own	C221	6-3⅝x3½	11	7½	1059	FK	5½	23	9	40	N
460D-Ind.	78¼	10½	15	4770	52	76	26	Ad	129¾	63	61	6.00/16	13.6/28	52.43	48.16	Op	10	1.20-16.50	2	1.50-2.30	Own	D236	6-3⅛x3½	11	7½	1059	FK	5¾	23	9	40	N
460HU	79	10½	12	4820	48	93	18	Ad	132	83½	65	6.00/16	12.4/38	51.64	48.15	Op	10	1.20-16.60	2	1.50-2.30	Own	C221	6-3⅝x3½	11	7½	1059	FK	5½	23	9	40	N
460D-HU	79	10½	12	4990	48	93	18	Ad	132	83½	65	6.00/16	12.4/38	52.43	48.16	Op	10	1.20-16.60	2	1.50-2.30	Own	D236	6-3⅛x3½	11	7½	1059	FK	5¾	23	9	40	N

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1961 WHEEL TRACTORS *(Concluded)*

TRACTOR MAKE AND MODEL	GENERAL: Wheelbase (In.)	Minimum Turning Radius Outside (Ft.)	Ground Clearance (In.)	Shipping Weight with Rubber Tires (Lb.)	TREAD (In.): Minimum	TREAD (In.): Maximum	DRAWBAR: Lateral Adjustment (In.)	DRAWBAR: Height Above Ground (In.)	OVERALL DIMENSIONS: Length (In.)	OVERALL DIMENSIONS: Width (In.)	OVERALL DIMENSIONS: Height—To Highest Point (In.)	TIRE SIZE (In.): Front	TIRE SIZE (In.): Rear	H.P. RATING: Belt	H.P. RATING: Drawbar	Power Take-Off	Forward Travel Speeds at Normal Governed Engine RPM with Standard Wheels: No. of Speeds	Forward Travel Speeds at Normal Governed Engine RPM with Standard Wheels: Range (MPH)	Reverse Travel Speeds at Normal Governed Engine RPM with Standard Wheels: No. of Speeds	Reverse Travel Speeds at Normal Governed Engine RPM with Standard Wheels: Range (MPH)	ENGINE: Make and Model	ENGINE: Number of Cylinders—Bore and Stroke (In.)	BELT PULLEY: Diameter (In.)	BELT PULLEY: Face (In.)	BELT PULLEY: Normal R.P.M.	Steering Type	CAPACITIES: Cooling System (Gal.)	CAPACITIES: Fuel Tank (Gal.)	CAPACITIES: Crankcase (Qts.)	CAPACITIES: Transmission (Qts.)	CAPACITIES: Final Drive Cases (Qts.)
Minneapolis-Moline Cont'd																																
UTIL-Ind.	88	17	17⅝	6310	66½	70½	15	16¼	136	84½	74¾	8.25/20	15/26	50.38	45.43	Op	6	1.80-13.50	6	1.90-13.00	Own	283B	4-4¼x5	16	7	741	FK	6	21	9	54	(1)
UTIL-D-Ind.	88	17	17⅝	6310	66½	70½	15	16¼	136	84½	74¾	8.25/20	15/26	45.00	40.00	Op	6	1.80-13.50	6	1.90-13.00	Own	D283	4-4¼x5	16	7	741	FK	6	21	15	54	(1)
Jet Star	86⅛	.....	20	3260	56	84	.....	.....	125¼	70⅛	65	5.50/16	12.4/28	.....	.....	St	10	1.40-14.30	2	2.10-3.90	Own	206	4-3½x5	N	.....	.....	DA	3½	14	6	32	.....
4 Star	86⅞	8½	22½	4700	56	88	16¼	12	131	82¼	71	6.00/16	13.6/38	48.00	44.00	St	10	1.69-17.82	2	2.58-4.93	Own	206	4-3½x5	8⅝	6½	1660	DA	3½	17	6	40	.....
4 Star Super	93⅝	11⅜	22½	4700	56	88	22½	12	138	82¼	71	6.00/16	13.6/38	48.00	44.00	St	10	1.69-17.82	2	2.58-4.93	Own	206	4-3½x5	8⅝	6½	1660	DA	3½	17	6	40	.....
M5	94	.....	22	5780	60	88	.....	.....	147	79⅞	76	6.00/16	13.6/38	64.50	59.00	St	10	1.60-16.79	2	2.43-4.64	Own	336	4-4½x5	12	7	1090	.....	5½	22½	.....	56	.....
M5	101⅛	.....	22	5780	60	88	.....	.....	147	79⅞	76	6.00/16	13.6/38	64.50	59.00	St	10	1.60-16.79	2	2.43-4.64	Own	336	4-4½x5	12	7	1090	.....	5½	22½	.....	56	.....
M5	93¾	.....	22	5780	60	88	.....	.....	147	79⅞	76	6.00/16	13.6/38	64.50	59.00	St	10	1.60-16.79	2	2.43-4.64	Own	336	4-4½x5	12	7	1090	.....	5½	22½	.....	56	.....
GVI	96⅛	16½	18	7650	54½	64½	.....	Ad	150½	82	79½	7.50/18	15/34	81.00	72.00	St	5	3.10-17.00	1	2.40	Own	425	6-4¼x5	8⅝	6½	1620	FK	12½	41¼	14	32	.....
Oliver Super 55 HC	73½	8	14½	3050	48	76	20⅞	Ad	120½	66¾	53⅛	550/16	10/28	35.88	30.75	Op	6	1.85-14.36	2	1.93-3.90	Own	55HC	4-3½x3¼	9	6½	1319	FK	3½	13	4	20	(1)
Super 55 D	73½	9	14½	3200	48	76	20⅞	Ad	120½	66¾	53⅛	5.50/16	10/28	34.09	28.97	Op	6	1.85-14.36	2	1.93-3.90	Own	55D	4-3½x3¼	9	6½	1319	FK	3½	13	4	20	(1)
RC Super 66 HC	86⅛	8	18⅛	2888	47	92½	20⅞	Ad	134⅛	80¼	87½	5.50/15	9/38	35.54	29.60	Op	6	2.35-11.92	2	2.69-4.62	Own	66HC	4-3½x3¼	9½	7¼	1234	SA	3½	12¾	4	18	(1)
RC Super 66 D	86⅛	8	18⅛	3026	47	92½	20⅞	Ad	134⅛	80¼	87½	5.50/15	9/38	35.43	29.09	Op	6	2.35-11.92	2	2.69-4.62	Own	66D	4-3½x3¼	9½	7¼	1234	SA	3½	12¾	4	18	(1)
RC Super 77 HC	90⅛	8½	18⅛	4226	46	92½	20⅞	Ad	139¼	80¼	75⅞	5.50/16	11/38	46.18	40.16	Op	6	2.46-11.53	2	2.59-4.52	Own	77HC	6-3½x3¾	11⅞	7¼	992	SA	4½	16¾	5	18	(1)
Ind. Super 77 HC	81⅝	11¼	13½	.....	52½	85½	20½	Ad	133⅞	64½	70⅞	7.00/20	12/24	.....	.....	Op	6	1.97-15.78	2	2.07-3.61	Own	77HC	6-3½x3¾	11⅞	7¼	992	FK	4½	16¾	5	18	(1)
RC Super 77 D	90⅛	8½	18⅛	4346	46	92½	20⅞	Ad	139¼	80¼	75⅞	5.50/16	11/38	45.94	40.04	Op	6	2.46-11.53	2	2.59-4.52	Own	77D	6-3½x3¾	11⅞	7¼	992	SA	4½	17	5	18	(1)
Ind. RC Super 77 D	81⅝	11¼	13½	.....	52½	85½	20½	Ad	133⅞	64½	70⅞	7.00/20	12/24	.....	.....	Op	6	1.97-15.78	2	2.07-3.61	Own	77D	6-3½x3¾	11⅞	7¼	992	FK	4½	17	5	18	(1)
RC Super 88 HC	93⅛	8¾	18½	5000	46	92½	20⅝	Ad	143⅞	80¼	75⅞	6.00/16	12/38	56.08	49.81	Op	6	2.50-11.80	2	2.56-4.40	Own	88HC	6-3¾x4	11⅞	7¼	992	SA	4½	20½	6	18	(1)
Ind. Super 88 HC	82⅛	11¼	12½	.....	54	87	20½	Ad	135⅛	67½	70⅝	7.00/20	13/24	.....	.....	Op	6	2.01-16.05	2	2.06-3.54	Own	88HC	6-3¾x4	11⅞	7¼	992	FK	4½	20½	6	18	(1)
RC Super 88 D	93⅛	8¾	18½	5100	46	92½	20⅝	Ad	143⅞	80¼	75⅞	6.00/16	12/38	55.63	49.58	Op	6	2.50-11.80	2	2.56-4.40	Own	88D	6-3¾x4	11⅞	7¼	992	SA	4½	18¼	6	18	(1)
Ind. Super 88 D	82⅛	11¼	11⅞	.....	54	87	20½	Ad	135⅛	67½	70⅝	7.00/20	13/24	.....	.....	Op	6	2.01-16.05	2	2.06-3.54	Own	88D	6-3¾x4	11⅞	7¼	992	FK	4½	18¼	6	18	(1)
550 HC	73½	10	14½	3000	48	76	20⅞	Ad	120½	87	53¾	5.50/16	10/28	.....	36.67	Op	6	1.92-14.88	2	2.00-4.12	Own	550HC	4-3½x3¼	9	6½	1319	FK	3½	13	4	20	(1)
550 D-SL	73½	10	14½	3100	48	76	20⅞	Ad	120½	87	53¾	5.50/16	10/28	.....	36.10	Op	6	1.92-14.88	2	2.00-4.12	Own	550DSL	4-3½x3¼	9	6½	1319	FK	3½	13	4	20	(1)
RC-770 HC	92⅛	9¾	18⅛	4428	60	92½	20⅝	Ad	141½	80¼	75	5.50/16	12.4/38	51.63	45.05	Op	6	1.64-11.04	2	2.48-4.33	Own	770HC	6-3½x3¾	11⅝	8	1022	SA	4½	20	5	18	(1)
RC-770 D-SL	92⅛	9¾	18⅛	4620	60	92½	20⅝	Ad	141½	80¼	75	5.50/16	12.4/38	50.71	46.04	Op	6	1.64-11.04	2	2.48-4.33	Own	770DSL	6-3½x3¾	11⅝	8	1022	SA	4½	20	5	18	(1)
RC-880 HC	94⅛	12½	18½	5100	60	92½	20⅝	Ad	143⅛	80¼	76	6.00/16	13.6/38	69.21	56.29	Op	6	1.57-13.05	2	2.39-4.46	Own	880HC	6-3¾x4	11⅝	8	1022	SA	4½	20	6	18	(1)
RC-880 D-SL	94⅛	12½	18½	5200	60	92½	20⅝	Ad	143⅛	80¼	76	6.00/16	13.6/38	61.85	54.97	Op	6	1.57-13.05	2	2.39-4.46	Own	880DSL	6-3¾x4	11⅝	8	1022	SA	4½	20	6	18	(1)
RC-660-HC	86⅛	.....	18⅛	3128	60	88	20½	Ad	134⅞	80¼	73¼	5.50/15	10/38	.....	.....	Op	6	2.35-11.92	2	2.69-4.62	Own	660HC	6-3½x3¾	9½	7¼	1232	SA	3½	13	4	18	(1)
RC-660 D-SL	86⅛	.....	18⅛	3178	60	88	20½	Ad	134⅞	80¼	73¼	5.50/15	10/38	.....	.....	Op	6	2.35-11.92	2	2.69-4.62	Own	660D	6-3½x3¾	9½	7¼	1232	SA	3½	13	4	18	(1)
RC-1800-G	103	9½	18⅛	7880	91¼	89½	25¼	.....	159½	80¼	99⅝	7.50/15	18.4/15	77.23	66.53	St	6	1.59-14.30	2	1.80-4.84	Own	1800	6-3¾x4	11⅝	8	1011	SA	5	36½	6	11	36
RC-1800-G	109¼	13	18⅛	8170	60	89½	25¼	.....	167⅛	80¼	100¼	7.50/16	18.4/15	77.23	66.53	St	6	1.59-14.30	2	1.80-4.84	Own	1800	6-3¾x4	11⅝	8	1011	FK	5	36½	6	11	36
W-1800-G	97¼	14½	17⅛	9680	69⅞	78	.....	.....	156⅞	88⅛	96¾	7.50/18	18.4/15	77.23	66.53	St	6	1.59-14.30	2	1.80-4.84	Own	1800	6-3¾x4	11⅝	8	1011	FK	5	36½	6	11	36
Ind. 1800-G	97¼	14½	16⅞	10500	64	82	36	.....	154	95½	96¾	8.25/20	18/26	77.23	66.53	Op	6	1.50-16.07	2	1.69-4.56	Own	1800	6-3¾x4	11⅝	8	1011	FK	5	36½	6	11	36
RC-1800-D	103	9½	18⅛	8020	91¼	89½	25¼	.....	159½	80¼	99⅝	7.50/15	18.4/15	73.19	64.02	St	6	1.59-14.30	2	1.80-4.84	Own	1800D	6-3½x4	11⅝	8	1011	SA	5	31½	6	11	36
RC-1800-D	109¼	13	18⅛	8310	60	89½	25¼	.....	167⅛	80¼	100¼	7.50/16	18.4/15	73.19	64.02	St	6	1.59-14.30	2	1.80-4.84	Own	1800D	6-3½x4	11⅝	8	1011	FK	5	31½	6	11	36
W-1800-D	97¼	14½	17⅛	9820	69⅞	78	.....	.....	156⅞	88⅛	96¾	7.50/18	18.4/15	73.19	64.02	St	6	1.59-14.30	2	1.80-4.84	Own	1800D	6-3½x4	11⅝	8	1011	FK	5	31½	6	11	36
Ind. 1800-D	97¼	14½	16⅞	10660	64	82	36	.....	154	95½	96¾	8.25/20	18/26	73.19	64.02	Op	6	1.50-16.07	2	1.69-4.56	Own	1800D	6-3½x4	11⅝	8	1011	FK	5	31½	6	11	36
W-1900-D	97¼	14½	17⅛	10220	61⅞	82	25¼	.....	156⅞	88⅛	101¼	7.50/18	18.4/15	94.34	85.04	St	6	1.59-14.30	2	1.80-4.84	GM	4-53	4-3½x4½	11⅝	8	1011	FK	5¼	31½	14½	11	36
Ind. 1900-D	98	14½	16⅞	11040	64	82	36	.....	154⅝	95½	100⅝	8.25/20	18/26	94.34	85.04	Op	6	1.50-16.07	2	1.69-4.56	GM	4-53	4-3½x4½	11⅝	8	1011	FK	5¼	31½	14½	11	36
RC-1800-LP	103	9½	18⅛	8030	91¼	89½	25¼	.....	159½	80¼	99⅝	7.50/15	18.4/15	.....	.....	St	6	1.59-14.30	2	1.80-4.84	Own	1800	6-3¾x4	11⅝	8	1011	SA	5	42	6	11	36
RC-1800-LP	109¼	13	18⅛	8320	60	89½	25¼	.....	167⅛	80¼	100¼	7.50/16	18.4/15	.....	.....	St	6	1.59-14.30	2	1.80-4.84	Own	1800	6-3¾x4	11⅝	8	1011	FK	5	42	6	11	36
W-1800-LP	97¼	14½	17⅛	9830	69⅞	78	.....	.....	156⅞	88⅛	96¾	7.50/18	18.4/15	.....	.....	St	6	1.59-14.30	2	1.80-4.84	Own	1800	6-3¾x4	11⅝	8	1011	FK	5	42	6	11	36
Sheppard SD-4	91½	8¾	26	6000	56	84	22½	18¼	138¼	Ad	83½	6.00/16	13/38	.....	.....	Op	10	1.89-16.00	2	1.62-2.15	Own	168	4-4½x5	10	7⅛	1150	DS	7½	22	10	32	(1)
Tiger PTD-5	46	8	13	518	26	40	N	13	64	26	35	4.00/8	5.00/12	5.10	4.50	St	1	8.00	1	8.00	BS	14	1-2¾x2¾	.....	.....	.....	SA	AC	1	½	1	1
883	46	9	15	590	26	40	N	15	66	26	37	4.00/8	6.00/16	5.10	6.80	St	1	8.00	1	5.00	BS	23	1-3x3	.....	.....	.....	SA	AC	1½	½	1	1
C-100	45	6	19	900	28	41	8	15	75	57	45	3.50/12	8/18	8.90	10.00	.....	3	2.00-10.00	1	3.00	BS	23	1-3x3	7	4	1300	.....	AC	2	3	3	3

ABBREVIATIONS

1—Included in transmission.
2—Available with dual front wheels.
3—Available as Western Special or Grove tractor.
4—Available as Western Special tractor.
5—Available as Western Special or High Clearance tractor.
6—Available as LPG tractor.
7—To top of steering wheel.
AA—Adjustable axle.
AC—Air cooled.
Ad—Adjustable.
BS—Briggs & Stratton Corp.
CL—Cam and lever.
Cont—Continental Motors Corp.
Cum—Cummins Engine Co.
D—Diesel.
DA—Divided axle.
DF—Divided axle or front axle knuckle.
DFS—Divided axle, front axle knuckle or solid axle.
DK—Double knuckle.
DS—Divided or solid axle.
Du—Dual.
F—Front.
FA—Fixed axle.
FK—Front axle knuckle.
Fo—Ford Motor Co.
FO—Fork type.
Fx—Fixed.
G—Gasoline.
GM—General Motors Corp.
GP—General purpose.
H—Hi-crop.
HC—Hi-clearance.
Her—Hercules Motors Corp.
HU—Hi-utility.
Ind—Industrial.
L or LP—Liquefied petroleum gas.
MM—Minneapolis-Moline Co.
N—None.
Op—Optional. **Ped**—Pedestal.
Or—Orchard. **Per**—F. Perkins, Ltd.
R or RC—Row-crop.
RS—Single row-crop.
RU—Row-crop utility.
SA—Solid axle.
St or Std—Standard.
ST—Single tricycle.
TT—Twin tricycle.
U—Utility.
Whl—Wheels.

For Directory of Tractor Manufacturers listed above, see page 53

1961.... SCRAPERS

MAKE AND MODEL	TRACTOR: ENGINE: Make and Model	No. of Cylinders—Bore and Stroke (in.)	Displacement (Cu. In.)	Max. Brake Hp. at RPM	Fuel	Clutch Type	TRANSMISSION: Forward Speeds	Reverse Speeds	Travel Speeds—Mph: Forward-Range	Reverse Range	SCRAPER: CAPACITY (Cu.Yds.): Struck	Heaped	Payload—Tons	Method of Operation	Ejection	Width of Cut (In.)	Depth of Cut (In.)	Depth of Spread (In.)	COMPLETE UNIT: Overall Dimensions: Length	Width	Height	TIRES—Size and Ply: Front	Rear	WEIGHTS: Empty (Lb.)	With Payload (Lb.)
Allis-Chalmers TS-160	Own TDS516	6-4 7/16 x5 5/8	516.0	155-2200	D	DPD	5	1	3.1-25.4	3.1	7.5	10.0	12.0	Hyd	PFF	97½	24¾	16⅝	31'5¼"	10'0"	8'6½"	18x25-16	18x25-16	29700	53700
TS-260	Own 16000	6-5¼x6½	844.3	230-2000	D	SPD	5	1	2.7-27.9	3.5	13.5	18.0	22.0	Hyd	PFF	116	13 7/8	18	34'10¼"	11'6 7/8"	9'10"	26.5x25-20	26.5x25-20	45800	89800
TS-360	Own 21000	6-5¼x6½	844.3	340-2000	D	DPD	5	1	3.0-26.3	3.0	22.3	30.0	34.0	Hyd	PFF	123	10	21	40'3"	12'0"	10'10"	29.5x35-24	29.5x35-24	64000	132000
Caterpillar DW-15	Own	6-5½x6½	805.0	200-2000	D	DPD	5	1	2.7-29.1	4.1	13.0	18.0	19.5	Cab	DTP	112	Prac	18½	40'11 1/16"	10'9 3/4"	10'0"	12x20-14	26½x25-20	44090	83090
DW-20	Own	6-5½x6½	805.0	345-2000	D	DPD	5	1	3.2-35.8	5.2	19.5	27.0	29.5	Cab	DTP	124	Prac	20	43'10"	11'9"	11'3½"	14x24-16	29½x29-28	59965	118465
DW-21	Own	6-5½x6½	805.0	345-2000	D	DPD	5	1	2.6-22.6	3.3	19.5	27.0	29.5	Cab	DTP	124	Prac	20	41'10½"	11'9"	11'5"	29½x29-28	29½x29-28	59980	118480
619	Own	6-5½x6½	805.0	225-2000	D	DPD	6	2	3.0-30.2	3.5-7.1	14.0	18.0	21.0	Cab	DTP	112	Prac	18	36'7½"	10'10"	9'8"	26.5x25-24	26.5x25-24	47150	89150
Curtiss-Wright CW-28	GM 4-71	4-4¼x5	283.7	148-2100	D	DPD	5	1	30.0	3.6	8.0	10.0	13.0	Cab	PRO	87	15	21½	29'10"	8'6"	8'6"	18x25-20	18x25-20	32500	58500
CW-215	Cum HRS6	6-5½x6	743.0	240-1800	D	SPD	10	2	33.9	5.2	15.0	21.0	21.0	Cab	PRO	120	16	20	38'4"	11'10"	10'0"	29.5x25-22	29.5x25-22	56800	98800
CW-320	Cum NRT6	6-5½x6	743.0	300-2100	D	DPD	9	2	32.0	7.8	20.0	27.0	31.0	Cab	PRO	120	18	22	42'3½"	11'11"	9'11"	29.5x29-28	29.5x29-28	64500	126500
CW-220	GM 6-110T	6-5x5 1/2	660.0	360-2000	D	TC	4	2	34.4	6.7	20.0	27.0	31.0	Cab	PRO	120	19	24	41'5"	11'11"	10'11"	27x33-24	27x33-24	69000	131000
CW-226	GM 12V-71	12-4¼x5	852.0	430-2100	D	TC	4	2	36.1	7.0	26.0	36.0	39.0	Cab	PRO	120	20	20	45'11"	11'11"	14'0"	33.5x33-32	33.5x33-32	85500	163500
Euclid S-7	GM 4-71	4-4¼x5	284.0	148-2100	D	TC	4	2	.....	.....	7.0	9.0	10.5	Hyd	PRO	84	10½	20	29'10"	8'0"	8'4½"	18x25-16	18x25-16	28500	47500
S-12	GM 6-71	6-4¼x5	426.0	227-2100	D	SP	5	1	2.9-22.6	3.9	12.0	17.0	20.0	Hyd	PRO	114½	14	27	35'3"	11'1½"	9'8½"	24x25-18	24x25-18	48100	86100
SS-12	GM 6-71	6-4¼x5	426.0	227-2100	D	SP	5	1	2.7-28.0	3.5	12.0	17.0	20.0	Hyd	PRO	117½	15	29	40'8"	11'1½"	9'4"	12x24-14	21x25-20	46250	86250
SS-18	GM 6-110	6-5x5 1/2	660.0	300-2000	D	TC	3	1	.....	.....	18.0	25.0	27.5	Hyd	PRO	123½	15½	21½	45'6"	11'6½"	8'4"	14x25-16	24x25-24	56900	111900
SS-18	Cum NHRS	6-5½x6	743.0	320-2100	D	SP	10	2	2.8-28.2	3.6-4.7	18.0	25.0	27.5	Hyd	PRO	123½	15½	21½	44'11"	11'6½"	10'3"	14x25-16	24x25-24	56000	111000
S-18	GM 6-110	6-5x5 1/2	660.0	336-2000	D	TC	4	2	.....	.....	21.0	30.0	35.0	Hyd	PRO	123½	13½	24	41'2"	11'8½"	10'11½"	27x33-24	27x33-24	69000	139000
SS-24	GM 6-110T	6-5x5 1/2	660.0	360-2000	D	TC	4	2	.....	.....	24.0	32.0	40.0	Hyd	PRO	123½	15	22	46'11"	11'8½"	10'3"	14x25-16	27x33-30	69900	149900
TS-24	GM 6-110[1]	6-5x5 1/2	660.0	336-2000	D	TC[2]	3[3]	3[3]	.....	.....	24.0	32.0	40.0	Hyd	PRO	123½	13½	26½	45'5"	11'8½"	11'0"	27x33-30	27x33-30	80000	160000
TS-14	GM 4-71[2]	4-4¼x5	284.0	148-2100	D	TC[2]	4[2]	2[2]	.....	.....	14.0	20.2	23.5	Hyd	PRO	117½	10½	16	39'0"	11'0"	9'9"	24x25-24	24x25-24	50000	97000
SS-33	GM 12V-71	12-4¼x5	852.0	432-2100	D	TC	4	2	33.5	.....	33.0	43.0	55.0	Hyd	R-P	132	16	27	51'4½"	12'8½"	10'8"	14x25-20	33.5x33-32	88000	198000
International S5	Cum HR6B1	6-5½x6	743.0	175-1800	D	SP	5	1	2.8-24.1	2.8	10.3	14.0	21.0	Cab	PRO	109¼	Un	19	34'0"	10'10½"	9'4"	26.5x25-20	26.5x25.20	40865	82865
S5	Cum NTO6B1	6-5½x6	743.0	262-2100	D	SP	5	1	2.7-23.4	2.3	15.0	20.0	27.5	Cab	PRO	113¾	Un	21½	39'4"	11'5¾"	10'2"	29.5x29-22	29.5x29-22	54345	109345
295	Own DT817	6-5 1/2x6	817.0	375-2100	D	TC	4	2	0-29.0	0-7.0	24.0	34.0	36.0	Cab	PP	122	16	21	44'8"	11'11½"	12'5½"	27x33-30	27x33-30	77160	149160
495	Own DT817	6-5 1/2x6	817.0	375-2100	D	DPD	9	2	0-30.7	0-5.9	24.0	34.0	36.0	Cab	PP	122	16	21	50'9"	11'11½"	12'7"	14x25-20	27x33-30	74470	146470
495	Own DT817	6-5 1/2x6	817.0	375-2100	D	TC	4	2	0-32.0	0-7.0	24.0	34.0	36.0	Cab	PP	122	16	21	50'9"	11'11½"	12'7"	14x25-20	27x33-30	75580	147580
Le Tourneau L-28	GM 12V-71	12-	.....	420-	D	(8)	...	...	If	If	20.5	23.0	30.0	.....	PF	120	Var	Var	43'5"	12'3"	14'6"	75-36	75-36	72000	132000
L-50	Cum VT12B1	12-	.....	600-	D	(8)	...	...	If	If	41.0	46.0	55.0	.....	PF	120	Var	Var	79'0"	12'2"	13'2"	75-36	75-36	136000	246000
L-60	GM 12V-71[5]	12-	.....	700-	D	(8)	...	...	If	If	41.0	46.0	55.0	.....	PF	120	Var	Var	75'5"	12'0"	13'8"	75-36	75-36	143000	253000
L-130	Cum VT12B1[6]	12-	.....	1200-	D	(8)	...	...	If	If	98.4	109.0	130.0	.....	PF	150	Var	Var	103'6"	14'6"	15'6"	89-48	89-48	262000	522000
L-140	GM 12V-71[7]	12-	.....	1260-	D	(8)	...	...	If	If	98.4	109.0	130.0	.....	PF	150	Var	Var	103'6"	14'6"	14'5"	89-48	89-46	266000	526000
Le Tourneau-Westinghouse D	GM 4-71	4-4¼x5	283.7	143-2100	D	SP	5	2	2.9-30.0	2.8-6.9	7.3	9.0	10.0	Ele	PF	84	Un	24	28'2"	8'0"	9'1½"	18x25-12	18x25-12	23070	43070
C	GM 8V71	8-4¼x5	567.4	270-2100	D	DP	5	1	2.6-27.0	2.6	14.0	20.0	22.0	Ele	PF	114	Un	18	37'3"	11'4"	10'1"	24x25-18	24x25-18	44000	88000
C	Cum NHS6B1	6-5½x6	743.0	276-2100	D	DP	5	1	2.8-37.7	2.8-3.7	14.0	20.0	22.0	Ele	PF	114	Un	21	41'2"	11'4"	10'1"	12x25-16	24x25-16	49000	93000
B	GM 12V-71	12-4¼x5	851.2	430-2100	D	DP	10	2	1.9-28.3	1.8-7.2	23.0	29.0	34.0	Ele	PF	120	Un	20	44'4"	11'8"	12'1"	27x33-24	27x33-24	69400	137400
Michigan 110	Cum NT380B1	6-4½x5	401.0	380-2200	D	TC	4	2	31.4	8.6	9.6	12.5	13.0	Hyd	PF	84	11	18½	32'8"	8'10"	9'7½"	23.5x25-20	23.5x25-20	34450	84450
210	Cum NTO6B1	6-5½x6	743.0	262-2100	D	TC	4	2	31.4	8.6	14.0	19.0	22.5	Hyd	PF	114	14	23	37'4"	11'2¼"	11'1½"	26.5x29-26	26.5x29-26	48580	93590
310	GM 12V-71	6-5½x6	743.0	430-2300	D	TC	4	2	31.2	8.3	24.0	32.0	35.0	Hyd	PF	120	16½	28½	43'11¾"	12'0"	13'5"	33.5x33-26	33.5x33-26	79660	149660
Seaman 660	Int[4]	6-3 11/16x4 1/2	282.0	90-2400	D	SPD	5	...	1.4-21.0	1.7-4.6	5.0	6.0	7.3	Hyd	Hyd	84	6	14	30'10"	10'0"	6'10"	18x26-10	11¼x26-10	17250	31750

ABBREVIATIONS

1—Tractor engine only; scraper also has GM 6-71 Diesel engine, 6-4¼x5, 426 cu. in.; 218-2100 h.p.
2—One used for each engine.
3—Tractor only; scraper also has transmission with three forward and one reverse speed.
4—Minneapolis-Moline M5 engine available.
5—Andon 8N-71.
6—Two used.
7—Three used.
8—Electric motors drive each wheel.
Cab—Cable.
Cum—Cummins Diesel Engine Co.
D—Diesel oil.
DP—Double plate.
DPD—Double plate, operating dry.
DTP—Dozer type, positive.
Ele—Electric.
GM—General Motors Corp.
Hyd—Hydraulic.
If—Infinite.
Int—International Harvester Co.
PF—Positive forced.
PFF—Positive forward forced.
Prac—Any practical depth.
PP—Positive push.
PRO—Positive roll out.
R-P—Combination roll-out and push-out.
SP—Single plate.
SPD—Single plate, operating dry.
TC—Torque converter.
Un—Unlimited.
Var—Variable to fit application.

For Directory of the Scraper Manufacturers listed above, see page 53

1961 .... GRADERS

MAKE AND MODEL	WEIGHT (Lb.)			OVERALL DIMENSIONS				ENGINE					SPEEDS (M.P.H.)				MOLDBOARD (BLADE)				TIRE SIZE		
	Front	Rear	Total	Length	Width	Height—Without Cab	Height—With Cab	Make and Model	No. of Cylinders—Bore and Stroke (In.)	Displacement (Cu. In.)	Max. Brake Hp at R.P.M.	No. of Forward	No. of Reverse	Range of Forward	Range of Reverse	Pressure—Lb.	Length & Thickness	Width (In.)	Lift for Ground Clearance (In.)	Front	Rear	Brake Actuation
Allis-Chalmers D	2700	6100	8800	18'4"	6'1½"	6'11¼"	8'9⅞"	Own	4-4x4½	226.0	58-1650	4	1	2.7-25.2	3.3	4900	10'-⅝"	16⅝	12	6.50/16	7.50/20	Mec
DD	2760	6590	9350	18'7½"	6'1½"	6'11⅜"	8'9⅞"	Gwn	6-3⅞x4⅝	262.0	58-1650	4	1	2.7-25.2	3.3	4900	10'-⅝"	16⅝	12	6.50/16	7.50/20	Mec
45	6125	17375	23800	25'9"	7'7¼"	9'1⅜"	10'6½"	Own	6-4⅛x5⅛	516.0	127-1800	6	3	2.7-20.3	3.2- 7.0	10950	12'-¾"	24	19⅝	9.00/24	13.00/24	Hyd
145	6500	15040	21540	25'3½"	7'7¾"	7'8⅝"	10'6½"	Own	4-4⅛x5⅛	344.0	80-1800	6	3	2.7-20.3	3.2- 7.0	10950	12'-¾"	24	19⅝	9.00/24	13.00/24	Hyd
Austin-Western Pacer 100	7107	9078	16185	24'0"	7'9"	8'6"	9'10"	GM 3-71	3-4¼x5	212.8	106-2100	6	2	2.5-20.8	2.6- 8.9	12490	12'-⅝"	22½	15	13.00/24	13.00/24	Hyd
Pacer 100[1]	7134	9266	16400	24'0"	7'9"	8'6"	9'10"	GM 3-71	3-4¼x5	212.8	106-2100	6	2	2.5-20.8	2.6- 8.9	12540	12'-⅝"	22½	15	13.00/24	13.00/24	Hyd
Super 100	7115	11527	18642	25'3"	8'0"	8'6"	9'10"	GM 3-71	3-4¼x5	212.8	106-2100	6	2	2.5-20.8	2.6- 8.9	12500	12'-¾"	22½	15	12.00/24	12.00/24	Hyd
Super 100[1]	7142	11715	18857	25'3"	8'0"	8'6"	9'10"	GM 3-71	3-4¼x5	212.8	106-2100	6	2	2.5-20.8	2.6- 8.9	12550	12'-¾"	22½	15	12.00/24	12.00/24	Hyd
Pacer 300	8687	12263	20950	24'9"	7'11"	8'8"	9'10"	GM 4-71	4-4¼x5	283.7	118-1900	6	2	2.0-17.8	2.0- 7.0	16250	13'-¾"	24	16	14.00/24	14.00/24	Hyd
Pacer 300[1]	8712	12453	21165	24'9"	7'11"	8'8"	10'2"	GM 4-71	4-4¼x5	283.7	122-2000	6	2	2.0-17.8	2.0- 7.0	16250	13'-¾"	24	16	14.00/24	14.00/24	Hyd
Super 300	8747	14103	22850	26'3"	8'0"	8'8"	10'4"	GM 4-71	4-4¼x5	283.7	118-1900	6	2	2.0-17.8	2.0- 7.0	16400	13'-¾"	24	16	13.00/24	13.00/24	Hyd
Super 300[1]	8772	14293	23065	26'3"	8'0"	8'8"	10'4"	GM 4-71	4-4¼x5	283.7	122-2000	6	2	2.0-17.8	2.0- 7.0	16400	13'-¾"	24	16	13.00/24	13.00/24	Hyd
Pacer 200	8733	11330	20063	24'0"	7'9"	8'6"	9'10"	GM 3-71	3-4¼x5	212.8	106-2100	6	2	2.5-20.8	2.6- 8.9	15330	12'-¾"	22½	15	13.00/24	13.00/24	Hyd
Pacer 200[1]	8760	11518	20278	24'0"	7'9"	8'6"	9'10"	GM 3-71	3-4¼x5	212.8	106-2100	6	2	2.5-20.8	2.6- 8.9	15380	12'-¾"	22½	15	13.00/24	13.00/24	Hyd
Super 200	7599	12495	20094	25'3"	8'0"	8'6"	9'10"	GM 3-71	3-4¼x5	212.8	106-2100	6	2	2.5-20.8	2.6- 8.9	13330	12'-¾"	22½	15	12.00/24	12.00/24	Hyd
Super 200[1]	7626	12683	20309	25'3"	8'0"	8'6"	9'10"	GM 3-71	3-4¼x5	212.8	106-2100	6	2	2.5-20.8	2.6- 8.9	13380	12'-¾"	22½	15	12.00/24	12.00/24	Hyd
Pacer 400	11050	14070	25120	24'10½"	7'11"	8'8"	10'4"	GM 4-71	4-4¼x5	.....	143-2000	6	2	2.2-19.1	2.2- 8.2	.....	13'-...	24	16	14.00/24	14.00/24	.....
Pacer 400[1]	11129	14421	25550	24'10½"	7'11"	8'8"	10'4"	GM 4-71	4-4¼x5	.....	143-2000	6	2	2.2-19.1	2.2- 8.2	.....	13'-...	24	16	14.00/24	14.00/24	.....
Super 400	10980	16710	27690	26'5"	8'0"	8'8"	10'4"	GM 4-71	4-4¼x5	.....	143-2000	6	2	2.2-19.1	2.2- 8.2	.....	13'-...	24	16	13.00/24	13.00/24	.....
Super 400[1]	11059	17061	28120	26'5"	8'0"	8'8"	10'4"	GM 4-71	4-4¼x5	.....	143-2000	6	2	2.2-19.1	2.2- 8.2	.....	13'-...	24	16	13.00/24	13.00/24	.....
Super 500	10980	16810	27790	26'5"	8'0"	8'8"	10'4"	GM 6V-71	6-4¼x5	.....	165-2100	6	2	2.3-20.0	2.3- 8.6	.....	13'-...	24	16	13.00/24	13.00/24	.....
Super 500[1]	11069	17161	28220	26'5"	8'0"	8'8"	10'4"	GM 6V-71	6-4¼x5	.....	165-2100	6	2	2.3-20.0	2.3- 8.6	.....	13'-...	24	16	13.00/24	13.00/24	.....
Caterpillar 12	6715	16595	23310	25'8⅜"	7'9¼"	7'6½"	10'5"	Own	6-4½x5½	525.0	115-1800	6	2	2.4-19.9	4.1- 6.5	.....	12'-7⅛"	24	16	9.00/25	13.00/24	.....
112E	6030	14775	20805	24'11"	7'9"	7'4"	10'3"	Own	4-4½x5½	350.0	85-2000	6	2	2.4-17.1	3.2- 4.3	.....	12'-¾"	24	16	7.50/24	13.00/24	.....
14C	7010	21510	28520	26'4"	8'0"	7'8½"	10'7"	Own	6-4½x5½	525.0	150-1800	6	2	2.6-21.6	4.5- 7.0	.....	12'-7⅛"	27	17¼	14.00/24	14.00/24	Hyd
112F	6030	14915	20945	24'11"	7'9"	7'4"	10'3"	Own	4-4½x5½	350.0	100-2100	6	2	2.5-18.0	3.3- 4.5	.....	12'-¾"	24	16	7.50/24	13.00/24	.....
Galion 503	2820	6600	9420	19'9"	6'2"	6'2"	8'8½"	Int UD236[2]	6-3⅞x3⅛	236.0	58-1800	4	1	.8-20.4	1.5- 4.3	4975	10'-⅝"	16⅝	12	7.50/20	7.50/20	Mec
303	4410	10590	15000	23'4"	7'1¾"	7'1"	9'8"	Int UD282[2]	6-3⅞x4⅜	282.0	70-1800	6	2	.8-16.8	1.4- 4.6	6300	10'-⅝"	20	15½	10.00/24	10.00/24	Hyd
104	6740	15810	22550	25'5"	7'9½"	7'7½"	10'6"	Int UD14A[4]	4-4⅝x6½	461.0	100-1800	6	2	1.1-20.1	1.3- 8.4	11790	12'-¾"	24½	18½	13.00/24	13.00/24	Hyd
118	6910	16600	23510	25'8"	7'10½"	7'8½"	10'7"	Int UD554[4]	6-4⅝x5½	554.0	125-1800	6	2	1.3-22.6	1.5-10.5	11950	12'-¾"	24½	19½	13.00/24	13.00/24	Hyd
160	8200	20320	28520	26'8"	7'10½"	7'8½"	10'7"	Cum H6BI	6-4⅞x6	672.0	160-1800	6	2	1.3-22.6	1.5-10.5	16400	12'-¾"	29	19½	14.00/24	14.00/24	Hyd
T-500	7700	16900	24600	25'10"	7'10½"	7'8½"	10'7"	Cum JN6BI	6-4¼x5	401.0	125-2500	4	4	.8-19.0	.8-19.0	15400	12'-¾"	24½	19½	13.00/24	13.00/24	Hyd
T-600[1]	8200	20320	28520	26'8"	7'10½"	7'8½"	10'7"	Cum JNS6BI[3]	6-4¼x5	401.0	180-2500	4	4	.8-19.0	.8-19.0	16400	12'-¾"	29	19½	14.00/24	14.00/24	Hyd
T-700[1]	12550	27300	39850	28'2"	8'6"	9'3½"	.....	Cum NH220BI	6-5½x6	743.0	220-2100	3	3	.9-16.0	.9-16.0	22020	14'-1"	30	19¼	16.00/24	16.00/24	Hyd
Huber-Warco 6-D2	7820	16980	24800	26'6"	7'11½"	9'2"	10'8½"	Cum JN6BI	6-4¼x5	401.0	125-...	4	4	.7-20.2	.7-20.2	13840	12'-¾"	24	16	13.00/24	13.00/24	Hyd
5D-190	9560	20440	30000	28'10⅜"	8'5½"	9'4"	10'10½"	GM 6-71	6-4½x5	425.6	195-...	3	1	.9-20.0	1.1- 5.7	15800	13'-¾"	28	17	16.00/24	16.00/24	Hyd
M-52	2120	4130	6250	13'6½"	7'2"	6'1"	8'4"	Cont F162	4-3⅞x4⅝	162.0	45-2100	8	1	1.7-20.7	2.8- 4.2	5650	9'-⅝"	13½	9	7.50/16	12.00/28	Hyd
8-D	6560	15190	21750	26'2"	7'11"	9'1½"	10'8"	Int UD370	4-4⅝x5½	370.0	83-...	6	6	1.1-20.7	1.2-21.9	.....	12'-¾"	24	17	13.00/24	13.00/24	Hyd
9-D	6600	15500	22100	26'2"	7'11"	9'1½"	10'8"	GM 3-71	3-4¼x5	212.8	100-...	6	6	1.1-20.7	1.2-21.9	.....	12'-¾"	24	17	13.00/24	13.00/24	Hyd
10-D	7400	16150	23550	26'2"	7'11"	9'1½"	10'8"	GM 4-71	4-4¼x5	283.7	125-...	6	6	1.1-20.7	1.2-21.9	.....	12'-¾"	26	17	13.00/24	13.00/24	Hyd
11-D	8100	19150	27250	26'4"	7'11½"	9'2"	10'8½"	Cum H6BI	6-4⅞x6	672.0	160-...	6	6	1.1-21.2	1.2-22.4	.....	13'-¾"	26	17½	14.00/24	14.00/24	Hyd
Le Tourneau-Westinghouse 220	4210	10225	14435	22'9"	7'3"	7'2"	9'11"	GM 3-53	3-3⅞x4½	159.2	67-1800	5	1	1.8-18.3	2.5- 3.2	7330	10'-½"	18	17	10.00/24	10.00/24	Mec
330	6625	14495	21120	25'1"	7'8"	7'8"	10'6"	GM 3-71	3-4¼x5	212.8	85-1800	8	4	1.4-23.3	1.1-12.2	.....	12'-¾"	25	17¼	7.50/24	12.00/24	Hyd
330	6625	14895	21520	25'1"	7'8"	7'8"	10'6"	Cum J6BI	6-4¼x5	401.0	85-1800	8	4	1.4-23.3	1.1-12.2	.....	12'-¾"	25	17¼	7.50/24	12.00/24	Hyd
440	6785	16215	23000	25'6"	7'9"	7'8"	10'6"	GM 4-71	4-4¼x5	283.7	115-1800	8	4	1.4-24.5	1.2-13.1	.....	12'-¾"	25	18	9.00/24	13.00/24	Hyd
440	6785	16215	23000	25'6"	7'9"	7'8"	10'6"	Cum C160BI	6-4¼x5	464.0	115-2000	8	4	1.4-24.5	1.2-13.1	.....	12'-¾"	25	18	9.00/24	13.00/24	Hyd
550	6725	17610	24335	25'6"	7'9"	7'8"	10'6"	GM 4-71	4-4¼x5	283.7	125-1800	8	4	1.4-24.7	1.2-13.2	.....	12'-¾"	25	18	9.00/24	13.00/24	Hyd
550	6725	17490	24215	25'6"	7'9"	7'8"	10'6"	Cum C160BI	6-4¼x5	464.0	125-2000	8	4	1.4-24.7	1.2-13.2	.....	12'-¾"	25	18	9.00/24	13.00/24	Hyd
PF-550	6725	17875	24600	25'6"	7'9"	7'8"	10'6"	GM 4-71	4-4¼x5	283.7	143-2000	4	4	.2-26.4	.2-23.5	.....	12'-¾"	25	18	9.00/24	13.00/24	Hyd
PF-550	6725	17875	24600	25'6"	7'9"	7'8"	10'6"	Cum C160BI	6-4¼x5	464.0	145-2100	4	4	.2-26.4	.2-23.5	.....	12'-¾"	25	18	9.00/24	13.00/24	Hyd
660	7010	20635	27645	26'1"	7'10"	8'0"	10'8"	GM 6-71	6-4¼x5	425.6	160-1800	8	4	1.3-26.0	1.1-13.7	.....	12'-¾"	28	18¼	14.00/24	14.00/24	Hyd
660	7010	21115	28125	26'1"	7'10"	8'0"	10'8"	Cum H6BI	6-4⅞x6	672.0	160-1800	8	4	1.3-26.0	1.1-13.7	.....	12'-¾"	28	18¼	14.00/24	14.00/24	Hyd
PF-660	7010	20765	27775	26'1"	7'10"	8'0"	10'8"	GM 6-71	6-4¼x5	425.6	190-2000	4	4	.2-27.4	.2-24.4	.....	12'-¾"	28	18¼	14.00/24	14.00/24	Hyd
660	7010	21235	28245	26'1"	7'10"	8'0"	10'8"	Cum HRF6BI	6-5¼x6	743.0	190-2000	4	4	.2-27.4	.2-24.4	.....	12'-¾"	28	18¾	14.00/24	14.00/24	Hyd
330-H	6675	14615	21290	25'4"	7'9"	7'8"	10'6"	GM 3-71	3-4¼x5	212.8	100-1800	8	4	1.4-23.6	1.1-12.2	.....	12'-¾"	25	18	9.00/24	13.00/24	Hyd
330-H	6675	15015	21690	25'4"	7'9"	7'8"	10'6"	Cum J6BI	6-4¼x5	401.0	100-1800	8	4	1.4-23.6	1.1-12.2	.....	12'-¾"	25	18	9.00/24	13.00/24	Hyd
Pettibone PM-12	8900	19455	28355	26'4"	7'11"	9'1½"	10'5"	GM 4-71	4-4¼x5	283.7	145-2100	6	6	2.7-25.7	2.2-20.9	14650	12'-¾"	24	17½	14.00/24	14.00/24	Hyd
PM-412	10700	15300	26000	25'7"	7'10¾"	9'1½"	10'5"	GM 4-71	4-4¼x5	283.7	145-2100	6	6	2.7-25.7	2.2-20.9	17800	12'-¾"	24	17½	14.00/24	14.00/24	Hyd

PM-502	10600	12600	23200	25'7"	8'0"	7'1"	10'6"	GM	4-71	4-4¼x5	283.7	123-	4	4	2.6-19.1	3.4-23.5	17500	12'-¾"	24	15½	14.00/24	14.00/24	Hyd
PM-612	11075	19780	30855	26'4"	7'11"	9'1½"	10'5"	GM	4-71	4-4¼x5	283.7	145-2100	6	6	2.8-25.7	2.2-20.2	17850	12'-¾"	24	17½	14.00/24	14.00/24	Hyd
401	5750	15540	21290	26'2"	8'0"	7'1"	10'6"	Her	298	6-3⅝x4½	298.0	69-	8	2	2.0-18.1	3.0- 4.2	10875	12'-¾"	24	18	12.00/24	12.00/24	Hyd
401 A	6135	15670	21805	26'2"	8'0"	7'1"	10'6"	GM	3-71	3-4¼x5	212.8	93-	8	2	2.0-18.1	3.0- 4.2	11550	12'-¾"	24	18	12.00/24	12.00/24	Hyd
402	6900	16670	23570	26'2"	8'0"	7'1"	10'6"	GM	4-71	4-4¼x5	283.7	125-	8	2	2.0-20.0	3.0- 4.6	13025	12'-¾"	24	18	13.00/24	13.00/24	Hyd
403	7350	18650	26000	26'5"	8'0"	7'1"	10'6"	GM	4-71	4-4¼x5	283.7	125-	8	2	2.0-17.5	2.9- 4.2	14700	12'-¾"	24	17	13.00/24	13.00/24	AH
404	7500	19340	26840	26'7"	8'0"	7'1"	10'7"	GM	4-71	4-4¼x5	283.7	125-	8	2	2.0-18.0	3.0- 4.1	16650	12'-¾"	24	17	14.00/24	14.00/24	AH

ABBREVIATIONS

1—With torque converter.
3—Supercharged engine.
4—Cummins and GM engines also available.
AH—Air over hydraulic.
Cont—Continental Motors Co.
Cum—Cummins Diesel Engine Co.
GM—General Motors Corp.
Her—Hercules Motor Co.
Hyd—Hydraulic.
Int—International Harvester Co.
Mec—Mechanical.

For Directory of the Grader Manufacturers listed above, see page 53

1961.... DUMPERS • REAR, BOTTOM, FRONT

MAKE AND MODEL	Type	WEIGHTS (Lbs.) Complete Unit—No Load	WEIGHTS (Lbs.) Complete Unit—Incl. Payload	CAPACITIES Struck (Cu. Yds.)	CAPACITIES Heaped (Cu. Yds.)	CAPACITIES Payload (Tons)	ENGINE Make and Model	ENGINE No. of Cylinders—Bore and Stroke (In.)	ENGINE Displacement (Cu. In.)	ENGINE Brake Horsepower at R.P.M.	ENGINE Maximum Torque at R.P.M.	ENGINE Fuel Used	TRANSMISSION Type	TRANSMISSION Ratios (To 1) First	Second	Third	Fourth	Fifth	Reverse	Clutch Type	Steering Type	TIRES (Size and Ply) Front	TIRES (Size and Ply) Rear	OVERALL DIMENSIONS Length	Width	Height
Allis-Chalmers TR-260	RD	44300	84300	11.0	15.0	20.0	Own 16000	6-5¼x6½	844.3	230-2000		D	Conv	6.54	3.36	1.75	1.00	.64	5.06[4]	SPD	Hyd	26.5x25-20	26.5x25-20	27'5"	11'8¾"[4]	10'5"
TR-160	RD	28100	52100	7.7	12.0	12.0	Own TDS516	6-4⅛x5⅞	516.0	155-	455-	D	Conv	7.33	4.43	2.62	1.69	1.00	7.33	DPD	Hyd	18x25	18x25	25'6"	7'11"	9'10"
Curtiss-Wright CWD-274	RD	44400	94400	14.0	21.0	25.0	Cum HRS6	6-5½x6	743.0	240-1800	753-1300	D	Conv	6.53	4.97	3.92	2.99	2.30	5.03	SFD	Hyd	29.5x25-22	29.5x25-22	28'11"	11'10"	11'2"
CWD-221	RD	69300	139300	21.0	31.0	35.0	GM 12V-71	12-4¼x5	852.0	430-2100	1210-1200	D	Aut	4.00	2.01	1.00	.67	N	5.22	TC	Hyd	33.5x33-32	33.5x33-32	33'8"	12'6"	12'11"
CWD-321	RD	64000	134000	21.0	31.0	35.0	Cum NRT6	6-5½x6	743.0	300-2100	810-1600	D	Conv	9.05	6.76	4.86	3.49	2.59	11.56	SPD	Hyd	29.5x29-28	29.5x29-40	35'3"	11'10"	11'4"
Euclid FTD	BD	36300	76300	13.0	19.0	20.0	GM 6-71	6-4¼x5	426.0	227-2100	606-1400	D	Conv	6.54	3.36	1.75	1.00	.640	5.06	SPD	Hyd	12x25-16	24x25-18	39'11"	10'9"	9'7½"
TDT	BD	45500	97500	17.0	25.5	26.0	GM 6-110	6-5x5²⁄₃₂	660.0	336-2100	938-1200	D	Aut					N	N	TC	Hyd	14x25-16	24x25-24	45'1½"	10'9"	10'3½"
TDT	BD	45000	97000	17.0	25.5	26.0	Cum NHRS	6-5½x6	743.0	320-2100	865-1550	D	Conv	6.52	3.92	2.78	1.31	.84	5.02	SPD	Hyd	14x25-16	24x25-24	44'7½"	10'9"	10'3½"
LDT	BD	63000	153000	30.0	46.0	45.0	GM 12V71	12-4¼x5	852.0	432-2100	1210-1200	D	Aut					N	(2)	TC	Hyd	14x25-16	27x33-30	50'0"	11'6"	10'3"
Koehring 60-3A	FR	17350	33850	9.0	12.0	8.0	GM 4057	4-4¼x5	284.0	109-1800	340-1100	D	Conv	65.00	35.50	18.30	N	N	(3)	SPD	Hyd	10x20-12	16x25-16	15'5"	8'5"	9'10"
100-1A	FR	62350	62350	9.0	12.0	15.0	GM 608	16-4¼x5	426.0	218-2100	570-1500	D	TC	48.05	16.90	N	N	N	(3)	Hyd	Hyd	12x25-16	21x25-20	19'8"	10'0"	10'10⅝"
Le Tourneau-Westinghouse D	RD	22300	44300	7.0	10.5	11.0	GM 4-71	4-4¼x5	283.7	143-2100	375-1600	D	Conv[1]							SP	Ele	18x25-16	18x25-16	24'11"	8'0"	9'6"
C	RD	48200	92200	14.7	22.0	22.0	GM 8V-71	8-4¼x5	567.4	270-2100	754-1200	D	Conv							DP	Ele	24x25-24	24x25-24	29'6"	11'7"	11'4"
B	RD	75800	145800	23.0	31.0	35.0	GM 12V-71	12-4¼x5	851.2	430-2000	1210-1200	D	Conv							DP	Ele	27x33-30	27x33-30	36'7"	12'6"	14'0"
90	BD	77400	257400	109.0	.....	90.0	Cum NVH12-55	12-5½x6	1710.0	550-2300	1443-1475	D	Aut							TC	Hyd	18x33-32	18x49-32	56'1"	12'7"	12'0"
60	RD	66000	186000	35.0	37.0	60.0	Cum VT12-700	12-5½x6	1710.0	550-2300	1300-1600	D	Aut							TC	Hyd	21x35-36	21x36-36	29'4"	14'0"	11'10"
42	RD	52950	36950	27.0	31.0	42.0	Cum VT8-430	8-5½x5	950.0	430-2500	990-1750	D	Aut							TC	Hyd	18x33-32	18x33-32	27'7"	12'0"	11'0"
32	RD	46030	110030	21.0	24.0	32.0	Cum NT380	6-5½x6	855.0	380-2300	955-1600	D	Aut							TC	Hyd	18x25-24	18x25-24	23'10"	12'0"	10'1"
27	RD	43900	97900	18.0	21.0	27.0	Cum NRTO6B1	6-5½x6	743.0	335-2100	900-1500	D	Aut							TC	Hyd	18x25-20	18x25-20	23'10"	12'0"	9'5"
22	RD	42800	86800	15.0	18.0	22.0	Cum NHRS6B1	6-5½x6	743.0	320-2100	860-1560	D	Aut							TC	Hyd	18x25-16	18x25-16	23'10"	11'10"	8'10"
Michigan 110	RD	31500	57500	8.3	12.0	13.0	Cum C175B1	6-4¼x5	401.0	162-	407-1750	D	PS					N		TC	Hyd	23.5x25-16	23.5x25-16	27'7½"	8'9"	9'10"
210	RD	50450	110500	16.0	20.0	25.0	Cum NSO6B1	6-5½x6	743.0	262-	695-1500	D	PS					N		TC	Hyd	26.5x29-22	26.5x29-22	31'10"	11'6½"	10'7¾"

ABBREVIATIONS

1—Torque converter optional.
2—Two reverse speeds.
3—Same as forward ratios.
Aut—Automatic.
BD—Bottom dump.
Conv—Conventional.
Cum—Cummins Diesel Engine Co.
D—Diesel oil.
DP—Double plate.
DPD—Double plate, operating dry.
Ele—Electric.
FR—Front and rear dump.
GM—General Motors Corp.
Hyd—Hydraulic.
N—No or None.
PS—Power shift.
RD—Rear dump.
SP—Single plate.
SPD—Single plate, operating dry.
TC—Torque converter.

For Directory of Dumper Manufacturers listed above, see page 53

1961.... POWERED ROLLERS

MAKE AND MODEL	Type	WEIGHTS (Lb.) Without Ballast	WEIGHTS (Lb.) With Water Ballast	COMPRESSIONS lb. in. Face Without Ballast	COMPRESSIONS lb. in. Face With Water Ballast	ENGINE Make and Model	No. of Cylinders—Bore and Stroke (In.)	Displacement (Cu. In.)	Max. Brake Hp. at R.P.M.	TRANSMISSION No. of Forward Speeds	No. of Reverse Speeds	Range in Forward Speeds (Mph)	Clutch—Type	Steering	DIMENSIONS Rollers—Diam. x Width (In.) Guide	Rollers—Diam. x Width (In.) Drive	Rolling Width (In.)	Overall (In.) Length	Overall (In.) Width	Overall (In.) Height	Ground Clearance (In.)	Turning Radius (Ft.)
Austin-Western 3½-6 Ton	PT	6948	10052	101[1]	154[1]	Wis VG4D	4-3½x4	154.0	36-2200	2	2	1.13-4.46	Fr	Hyd	32x40	48x42	42	128½	51⅞	69½	11¼	14'2"
5-8 Ton	Tan	11623	16523	135[1]	195[1]	Ford J	8-3⅝x3⅛	272.0	75-1650	2	2	.88-3.30	TC	Hyd	41x50	53x50	50	176½	63⅝	84½	15½	18'0"
5-8 Ton	Tan	11623	16523	135[1]	195[1]	GM 271	2-4¼x5	141.9	60-1750	2	2	.88-3.30	TC	Hyd	41x50	53x50	50	176½	63⅝	84½	15½	18'0"
8-12 Ton	Tan	16469	24283	187[1]	268[1]	Ford J	8-3⅝x3⅛	272.0	75-1650	2	2	.99-3.72	TC	Hyd	48x54	60x54	54	190	67⅝	88	19	20'0"
8-12 Ton	Tan	16469	24283	187[1]	268[1]	GM 271	2-4¼x5	149.9	60-1750	2	2	.99-3.72	TC	Hyd	48x54	60x54	54	190	67⅝	88	19	20'0"
10-14 Ton	Tan	20092	27906	254[1]	335[1]	Ford J	8-3⅝x3⅛	272.0	75-1650	2	2	.99-3.72	TC	Hyd	48x54	60x54	54	190	67⅝	88	19	20'0"
10-14 Ton	Tan	20092	27906	254[1]	335[1]	GM 271	2-4¼x5	149.9	60-1750	2	2	.99-3.72	TC	Hyd	48x54	60x54	54	190	67⅝	88	19	20'0"
8-11 Ton	TW	16411	19695	315[1]	366[1]	Ford J	8-3⅝x3⅛	272.0	75-1650	2	2	.99-3.73	TC	Hyd	41x40	60x18	67	205	67	78¾	15	18'11"
8-11 Ton	TW	16411	19695	315[1]	366[1]	GM 271	2-4¼x5	141.9	60-1750	2	2	.99-3.73	TC	Hyd	41x40	60x18	67	205	67	78¾	15	18'11"
10-12 Ton	TW	20062	25122	328[1]	409[1]	Ford J	8-3⅝x3⅛	272.0	75-1650	2	2	1.14-4.30	TC	Hyd	44x44	69x20	75	206½	75	83¼	19½	19'3"
10-12 Ton	TW	20062	25122	328[1]	409[1]	GM 271	2-4¼x5	141.9	60-1750	2	2	1.14-4.30	TC	Hyd	44x44	69x20	75	206½	75	83¼	19½	19'3"
12-14 Ton	TW	24040	29600	356[1]	434[1]	Ford J	8-3⅝x3⅛	272.0	75-1650	2	2	1.14-4.30	TC	Hyd	44x44	69x24	83	206½	83	83¼	19½	19'3"
12-14 Ton	TW	24040	29600	356[1]	434[1]	GM 271	2-4¼x5	141.9	60-1750	2	2	1.14-4.30	TC	Hyd	44x44	69x24	83	206½	83	83¼	19½	19'3"
Browning SPR-9	RT	6550		96		Cont. F244		244.0	64-1800	4	4	2.00-13.00	TC	Hyd	5-7.50/15	4-7.50/15	68	177½	69	74	9½	19'6"
SPR-13	RT	8460		85		Cont F244	6-3⅛x4⅜	244.0	64-1800	4	4	2.00-13.00	TC	Hyd	7-7.50/15	6-7.50/15	99½	192	100½	74	9½	21'0"
SPR-13	RT	8460		85		Cont ED208	4-3⅛x4⅜	208.0	52-1800	4	4	2.00-13.00	TC	Hyd	7-7.50/15	6-7.50/15	99½	192	100½	74	9½	21'0"
SPR-9	RT	6550		96		Cont ED208	4-3⅛x4⅜	208.0	52-1800	4	4	2.00-13.00	TC	Hyd	7-7.50/15	4-7.50/15	68	177½	69	74	9½	19'6"
25T-11	RT	18470		196		Cont M330	6-4x4½	330.0	83-1800	4	4	2.00-15.00	TC	Hyd	5-9.00/20	6-9.00/20	94	228	96	100	12	24'8"
33T-7	RT	21300		250		Cont TD427	6-4⅛x4⅞	427.0	114-1800	5	5	2.00-14.00	TC	Hyd	3-13.00/24	4-13.00/24	85	252	91	112	14	26'8"
SPR-11	RT	8330				Cont F244	6-3⅛x4⅜	244.0	64-1800	4	4	2.00-13.00	TC	Hyd	5-7.50/15	6-7.50/15	84	192	90½	74	9½	20'4"
18T-9	RT	9500				Cont F244	6-3⅛x4⅜	244.0	64-1800	4	4	2.00-13.00	TC	Hyd	5-7.50/15	4-7.50/15	64	193	66½	93	9½	20'0"
5-8 Ton	Tan	10300	16200	123	202	Cont F162	4-3⅛x4⅜	162.0	40-1800	4	4	2.00-16.00	TC	Hyd	40x50	52x50	50	175	58	81	13	19'0"
8-10 Ton	Tan	16000	20250	205	259	Cont F162	4-3⅛x4⅜	162.0	40-1800	4	4	2.00-16.00	TC	Hyd	40x50	52x50	50	175	58	81	13	19'0"
8-12 Ton	Tan	16200	24250	180	251	Cont F244	6-3⅛x4⅜	244.0	64-1800	4	4	2.00-16.00	TC	Hyd	48x54	60x54	54	198	64	90	17	21'0"
3-5 Ton	PT	6900	10200	99	151	Cont Y112	4-3½x3½	112.0	27-1800	2	2	2.00-5.00	TC	Hyd	33x40	48x42	42	132	53	80	12	13'6"
6-8 Ton	TW	12040	16100	236	306	Cont F162	4-3⅛x4⅜	162.0	40-1800	2	2	2.00-5.00	TC	Hyd	38x40	55x18	72	180	72	80	12	.....
8-10 Ton	TW	16292	20000	260	340	Cont F244	6-3⅛x4⅜	244.0	64-1800	2	2	2.00-5.00	TC	Hyd	42x44	60x20½	80	194	80	85	12	.....
10-12 Ton	TW	20268	24000	328	400	Cont F244	6-3⅛x4⅜	244.0	64-1800	2	2	2.00-5.00	TC	Hyd	42x44	60x20½	80	194	80	85	12	.....
12-14 Ton	TW	24000	28000	350	409	Cont F244	6-3⅛x4⅜	244.0	64-1800	2	2	2.00-5.00	TC	Hyd	42x44	60x24	84	194	84	85	12	.....
C. H. & E. 91-A	Tan	2900	4500	53[1]	85[1]	BS 23A	1-	23.0	8-	1	1	1.00-2.50	Fr	Mec	24½x30	30⅜x36	36	90	40	50	10½	12'0"
91-A	Tan	2900	4500	53[1]	85[1]	Wis AENL	1-	23.0	8-	1	1	1.00-2.50	Fr	Mec	24½x30	30⅜x36	36	90	40	50	10½	12'0"
92-A	Tan	3800	5300	78[1]	107[1]	BS 23A	1-	23.0	8-	1	1	1.00-2.50	Fr	Mec	24½x30	30⅜x36	36	90	40	50	10½	12'0"
92-A	Tan	3800	5300	78[1]	107[1]	Wis AENL	1-	23.0	8-	1	1	1.00-2.50	Fr	Mec	24½x30	30⅜x36	36	90	40	50	10½	12'0"
3BT	Tan	4800	6750	90[1]	130[1]	Wis TH	2-	54.0	14-	1	1	.50-3.00	Fr	Mec	28x32	38x36	36	111	44	58	9	.....
3BA	Tan	6325	8100	130[1]	165[1]	Wis VE4	4-	92.0	20-	1	1	.50-3.00	Fr	Mec	28½x32	38¾x36	36	111½	44	58¾	9	15'0"
Ferguson-Gebhard 2-3 Ton	PT	4780	6000	105	133	Wis TF	2-3⅛x3¼	53.9	12-2000	2	2	2.05-4.40	Fr	Mec	24x30	38x32	32	105	84½	61	9	9'0"
2-3 Ton	PT	4785	6000	105	133	Wis TF	2-3⅛x3¼	53.9	12-2000	1	1	2.00-	Fr	Mec	24x30	36x32	32	105	84½	61	9	8'10"
3-6 Ton	PT	7130	10350	102	152	Wis VH4	4-3⅛x3¼	107.7	25-2000	2	2	1.90-4.20	Fr	Hyd	33x40	48x42	42	132	80	59½	12	16'10"
3-6 Ton	PT	7130	10350	102	152	Cont Y112	4-3⅛x3½	111.7	29-2000	2	2	1.90-4.20	Fr	Hyd	33x40	48x42	42	132	80	59½	12	16'10"
4-6 Ton	PT	9000	12200	129	181	Cont Y112	4-3⅛x3½	111.7	29-2000	2	2	1.90-4.20	Fr	Hyd	33x40	48x42	42	132	80	59½	12	16'10"
5-8 Ton	Tan	11700	17600	150[1]	220[1]	Cont F162	4-4½x3¼	162.0		2	2	1.00-4.50	TC	Hyd	40x50	53x50	50	174	60	68	13	18'0"
5-8 Ton	Tan	11700	17600	150[1]	220[1]	Cont GD157	4-4½x3⅝	157.0	45-2000	2	2	1.00-4.50	TC	Hyd	40x50	53x50	50	174	60	68	13	18'0"
8-12 Ton	Tan	17530	24420	210[1]	287[1]	Cont F226	6-3⅛x4⅝	162.0	73-2400	2	2	0-5.50	TC	Hyd	48x54	60x54	54	198½	69⅝	95	15	19'0"
8-12 Ton	Tan	17530	24420	210[1]	287[1]	Cont H260	4-3⅞x5½	157.0	61-2200	2	2	0-5.50	TC	Hyd	48x54	60x54	54	198½	69⅝	95	15	19'0"
10 Ton	RT	7170	21470	100	298	OI Super 660	4-3½x3¾	144.0	37-2000	6	2	2.50-12.00	Fr	Hyd	4-7.50/15	5-7.50/15	68	150	68	90	10½	15'0"
10 Ton	RT	7170	21470	100	298	OI Super 660	4-3½x3¾	144.0	37-2000	6	6	2.50-12.00	TC	Hyd	4-7.50/15	5-7.50/15	68	150	68	90	10½	15'0"
10 Ton	RT	7170	21470	100	298	OI Super 770	6-3½x3¾	216.0	52-2000	6	6	2.50-12.00	TC	Hyd	4-7.50/15	5-7.50/15	68	150	68	90	10½	15'0"
12 Ton	RT	8270	24800	95	282	OI Super 770	6-3½x3¾	216.0	52-2000	6	6	2.50-12.00	TC	Hyd	5-7.50/15	6-7.50/15	83	154	68	91	10	18'0"
12 Ton	RT	8270	24800	95	282	MM 445	4-3⅝x5	206.0	57-1900	5	5	2.50-12.00	TC	Hyd	5-7.50/15	6-7.50/15	83	154	68	91	10	18'0"
25 Ton	RT	16050	50000	146	454	MM .5 Star	6-4¼x5	283.0	62-1400	6	6	2.00-14.50	Fr	Hyd	5-9.00/20	6-9.00/20	96	172	96	87	11	23'0"
25 Ton	RT	16050	50000	146	454	MM D336	6-4⅝x5	336.0	66-1600	6	6	2.00-14.50	Fr	Hyd	5-9.00/20	6-9.00/20	96	172	96	87	11	23'0"
35 Ton	RT	22500	70000	238	744	GM 4-71	4-4¼x5	284.0	125-	3	3	0-10.80	TC	Hyd	3-13.00/24	4-13.00/24	95½	218	96	85	13	24'4"
Galion Chief 20" 10/12 Ton[7]	TW	20100	25840	345	435	Int UB264	6-3⅛x4⅜	264.0	90-	2	2	.50-5.50	TC	Hyd	44x44	69x20	76	213¼	76	81½	18	19'0"
Chief 24" 10/12 Ton[7]	TW	20750	27315	301	394	Int UB264	6-3⅛x4⅜	264.0	90-	2	2	.50-5.50	TC	Hyd	44x44	69x24	84	213¼	84	81½	18	19'0"
Chief 20" 12/14 Ton[7]	TW	24065	29175	444	518	Int UB264	6-3⅛x4⅜	264.0	90-	2	2	.50-5.50	TC	Hyd	44x44	69x20	76	213¼	76	81½	18	19'0"
Chief 24" 12/14 Ton[7]	TW	24900	30615	388	462	Int UB264	6-3⅛x4⅜	264.0	90-	2	2	.50-5.50	TC	Hyd	44x44	69x24	84	213¼	84	81½	18	19'0"
Warrior 20" 8/10 Ton[7]	TW	17000	20980	299	363	Int UB220	6-3⅛x3⅜	220.0	70-	2	2	.50-5.50	TC	Hyd	38x41	60x20	74	200	74	71⅝	15⅝	18'0"
3/5 Ton 2 Axle	Tan	7130	10400	102	155	Cont Y112	4-3⅛x3½	112.0	32-	2	2	.50-5.60	TC	Hyd	34x40	48x42	42	150½	50¼	80	15	14'0"
4/6 Ton 2 Axle	Tan	8550	11820	126	179	Cont Y112	4-3⅛x3½	112.0	32-	2	2	.50-5.60	TC	Hyd	34x40	48x42	42	159½	78¾	80	9	14'0"

	5/8 Ton 2 Axle[7]	Tan	12050	17650	137	211	Int	UB220	6-3 7/16x3 1/2	220.0	70-	2	2	.50-5.50	TC	Hyd	40x50	53x50	50	187 1/2	62 1/2	87	15	18'0"
	8/10 1/2 Ton 2 Axle[7]	Tan	16200	21600	196	268	Int	UB220	6-3 7/16x3 1/2	220.0	70	2	2	.50-5.50	TC	Hyd	40x50	53x50	50	187 1/2	62 1/2	87	15	18'0"
	8/12 Ton 2 Axle[7]	Tan	16390	24210	182	272	Int	UB264	6-3 1/2x4 1/8	264.0	90	2	2	.50-5.50	TC	Hyd	48x54	60x54	54	204 1/4	67	94 3/4	16 1/2	19'0"
	10/14 Ton 2 Axle[7]	Tan	20590	27910	260	341	Int	UB264	6-3 1/2x4 1/8	264.0	90	2	2	.50-5.50	TC	Hyd	48x54	60x54	54	204 1/4	67	94 3/4	16 1/2	19'0"
	13/20 Ton 2 Axle[7]	Tan	28050	40420	305	447	Int	UB264	6-3 1/2x4 1/8	264.0	90	2	2	.50-5.50	TC	Hyd	2 48x54	60x54	54	270 1/2	67	94 3/4	16 1/2	35'6"
	Trench	TR	6235	8785	310	370	Wis	VG4D	4-3 1/2x4	154.0	25-	2	2	1.50-3.40	Fr	Hyd		60x20	20	165	81	72	27	20'4"
Huber-Warco	R-7610	Tan	6790	10510	97	160	Her	IXB	4-3 1/4x4	133.0	41-	1	1	.50-5.60	TC	Hyd	34x40	48x42	42	131	54 3/4	73	12	11'6"
	R-6710	Tan	12260	17300	148	214	Her	GO173	4-3 1/2x4 1/2	173.0	59-	2	2	.50-5.75	TC	Hyd	40x50	53x50	50	177	60	84 3/4	14	17'6"
	R-8710	Tan	16260	20380	195	244	Her	GO173	4-3 1/2x4 1/2	173.0	59-	2	2	.50-5.75	TC	Hyd	40x50	53x50	50	177	60	84 3/4	14	17'6"
	R-6810	Tan	16164	24099	185	278	Her	GO226	4-4x4 1/2	226.0	77-	2	2	.50-5.50	TC	Hyd	48x54	60x54	54	197	65 1/2	96	16	19'0"
	R-8810	Tan	20004	27406	240	326	Her	GO226	4-4x4 1/2	226.0	77-	2	2	.50-5.50	TC	Hyd	48x54	60x54	54	197	65 1/2	96	16	19'0"
	R-6310	TW	20200		343		Her	GO339	6-4x4 1/2	339.0	100-	2	2	.40-5.75	TC	Hyd	44x44	69x20	76	205 1/2	76	80 1/2	18 1/2	20'3"
	R-6410	TW	24200		411		Her	GO339	6-4x4 1/2	339.0	100-	2	2	.40-5.75	TC	Hyd	44x44	69x20	76	205 1/2	76	80 1/2	18 1/2	20'3"
	R-6510	TW	28200		479		Her	GO339	6-4x4 1/2	339.0	100-	2	2	.40-5.75	TC	Hyd	44x44	69x20	76	205 1/2	76	80 1/2	18 1/2	20'3"
	R-8310	TW	21120	25920	368	443	Her	GO339	6-4x4 1/2	339.0	100-	2	2	.40-5.75	TC	Hyd	44x44	69x20	76	205 1/2	76	80 1/2	18 1/2	20'3"
	R-7910	TW	25150	28950	469	519	Her	GO339	6-4x4 1/2	339.0	100-	2	2	.40-5.75	TC	Hyd	44x44	69x20	76	205 1/2	76	80 1/2	18 1/2	20'3"
	R-7682	PT	8250	12020	117	182	Her	IXB	4-3 1/4x4	133.0	41-	1	1	.50-5.60	TC	Hyd	34x40	48x42	42	143	85 1/4	73	7 1/2	11'6"
Ingram	5-8	Tan	10200	16150	122	201	Her	GO298	6-3 3/4x4 1/2	298.0	105-	4	4	1.00-6.00	TC	Hyd	40x50	52x50	50	187	57	80	10	20'3"
	8-10	Tan	16100	20300	210	260	Her	GO298	6-3 3/4x4 1/2	298.0	105-	4	4	1.00-6.00	TC	Hyd	40x50	52x50	50	187	57	80	10	20'3"
	8-12	Tan	16300	24035	181	267	Her	GO298	6-3 3/4x4 1/2	298.0	105-	4	4	1.00-6.00	TC	Hyd	48x54	60x54	54	205	65	88	16	19'10"
	6	TW	8900	11900	155	208	Her	GO226	4-4x4 1/2	226.0	66-	5	5	.25-8.00	TC	Hyd	38x36	48x18	69	169	69	60	13	16'0"
	8	TW	12110	15585	223	290	Her	GO298	6-3 3/4x4 1/2	298.0	81-	5	5	.25-8.00	TC	Hyd	38x40	55x18	71	177	71	66	16	14'9"
	10	TW	16107	20745	260	337	Her	GO298	6-3 3/4x4 1/2	298.0	81-	5	5	.25-8.00	TC	Hyd	42x44	60x20	79	194	79	79	16	17'0"
	12	TW	20328	24364	352	432	Her	GO298	6-3 3/4x4 1/2	298.0	81-	5	5	.25-8.00	TC	Hyd	44x44	69x20	79	219	79	79	21	18'0"
	3-5	Tan	7140	10600	111	158	Cont	Y112	4-3 1/8x3 1/2	112.0	32-	2	2	.25-6.00	TC	Hyd	34x40	48x42	42	155	55	74	15	15'0"
	4-6	Tan	8890	12185	127	180	Cont	Y112	4-3 1/8x3 1/2	112.0	32-	2	2	.25-6.00	TC	Hyd	34x40	48x42	42	169	84	74	9	15'0"
	13-20	TAT	26350	37000	293	411	Her	GO298	6-3 3/4x4 1/2	298.0	105-	4	4	1.00-6.00	TC	Hyd	48x54	60x54	54	276	65	88	16	19'6"
	10-14	Tan	20100	28100	251	342	Her	GO298	6-3 3/4x4 1/2	298.0	105-	4	4	1.00-6.00	TC	Hyd	48x54	60x54	54	205	65	88	16	19'.0"
	10 Ton	RT		13940		221	Int	UC221	6-3 7/16x3 1/2	221.0	75-	5	5	2.50-16.50	TC	Hyd	7.50/15	7.50/15	68	150	68	84	11	15'0"
Le Tourneau	M50-55	FDS	80000		1000[3]		GM	12V71	12-4 1/4x5	851.2	420-	If	If	0-5.00		Ele		60x60	134	362	171	154	29	
Seaman	7-20DTR	RS	14000	40000	130	525	Int	460D	6-3 11/16x3 1/2	236.0	70-2400	10	2	1.50-18.00	Fr	Hyd	8-7.50/15	2-15.00/26	86	294	86	84	10	18'0"
	8-20DTRV	RS	16000	40000	153	508	Int	460D	6-3 11/16x3 1/2	236.0	70-2400	10	2	1.50-18.00	Fr	Hyd	8-7.50/15	2-15.00/26	86	309	86	88	10	18'0"
	9-27DTR[8]	RS	19000	54000	147	595	Int	660D	6-3 11/16x4 1/2	282.0	90-2400	10	2	1.50-18.00	Fr	Hyd	8-7.50/15	2-18.00/26	86	318	86	85	10	18'0"
	10-27DTRV[8]	RS	20000	54000	156	595	Int	660D	6-3 11/16x4 1/2	282.0	90-2400	10	2	1.50-18.00	Fr	Hyd	8-7.50/15	2-18.00/26	86	332	86	88	10	18'0"
	10-30RD[8]	RS	20000	60000	118	700	Int	660D	6-3 11/16x4 1/2	282.0	90-2400	10	2	1.50-18.00	Fr	Hyd	8-7.50/15	2-18.00/26	89	342	89	90	10	18'0"
Tampo	SP91	RT	6700	20000[2]	26[3]	40[4]	OI	660	4-3 5/16x3 3/4	155.0	45-2000	6	6	0-11.00	TC	Hyd	4-7.50/15	5-7.50/15	72	154	72	88	10	20'0"
	SP111	RT	8500	24000[2]	30[3]	52[4]	OI	880	6-3 5/16x4	265.0	65-2200	6	6	0-20.00	TC	Hyd	5-7.50/15	6-7.50/15	88	155	88	92	10	20'0"
	SP900	RT	15000	28000[2]	52[3]	85[4]	OI	880	6-3 5/16x4	265.0	65-2200	6	6	0-20.00	TC	Hyd	4-7.50/15	5-7.50/15	64	156	64	93	10	24'0"
	SP1030	RT	20000	60200[2]	47[3]	90[4]	OI	880[9]	12-3 5/16x4	530.0	130-2200	5	5	0-15.00	TC	Hyd	5-9.00/20	6-9.00/20	94	212	94	106	10	27'0"

ABBREVIATIONS

1—Drive roll.
2—With wet sand ballast.
3—Pounds per square inch.
4—Pounds per square inch with wet sand.
7—Diesel engine available.
8—Minneapolis-Moline M5 Diesel available.
9—Two used.
BS—Briggs & Stratton Corp.
Cont—Continental Motors Corp.
Ele—Electric. FC—Fluid coupling.
FDS—Four drum sheepfoot roller.
Fr—Friction.
GM—General Motors Corp.
Her—Hercules Motors Corp.
Hyd—Hydraulic.
If—Infinite electric drive.
Int—International Harvester Co.
Mec—Mechanical.
MM—Minneapolis Moline Co.
OI—Oliver Corp. Opt—Optional.
PT—Portable tandem.
RS—Rubber and steel roll.
RT—Rubber tired. Tan—Tandem.
TAT—Three axle tandem.
TC—Torque converter.
TR—Trench roller.
TW—Three wheel.
Wis—Wisconsin Motor Corp.

For Directory of the Powered Roller Manufacturers listed above, see page 53

Tractor Shipments by Months

In Units and Their Value

As reported by the Industry Div., Bureau of the Census

Month	1960 Units	1960 Value	Month	1960 Units	1960 Value
WHEEL-TYPE			**TRACKLAYING-TYPE**		
January	18,966	$40,421,000	January	2,371	$26,758,000
February	17,142	36,080,000	February	2,522	27,631,000
March	18,827	40,989,000	March	2,737	32,528,000
April	14,961	31,877,000	April	2,523	30,444,000
May	11,800	20,667,000	May	1,980	26,190,000
June	10,059	21,734,000	June	1,990	23,279,000
July	7,140	14,513,000	July	1,349	18,878,000
August	3,960	8,956,000	August	1,590	20,920,000
September	10,338	28,517,000	September	1,988	19,917,000
October	13,826	35,766,000	October	1,943	17,965,000
November	9,126	23,140,000	November	1,318	14,413,000
December	14,470	38,432,000	December	1,600	15,771,000
Total—Wheel Type	150,615	$341,092,000	Total—Tracklaying-Type	23,911	$274,894,000

1961.... INTEGRAL FRONT-END LOADERS (SHOVEL)

MAKE AND MODEL	Type	OVERALL DIMENSIONS							Weight (Lb.)—No load, but incl. water, fuel, lubricant	BUCKET										Track—Width of Shoe (In.)	ENGINE			TRANSMISSION						Brake Type	Maximum Drawbar Pull (Lb.)
		Height—Highest Point, Bucket at Ground Level (In.)	WIDTH (In.)		LENGTH (In.)		Wheelbase (In.)	Track Length on Ground (In.)		Capacity—Heaped (Cu. Yd.)	Capacity—Struck (Cu. Yd.)	Width (In.)	Lifting Capacity (Lb.)	Carrying Capacity (Lb.)	Maximum Dumping Clearance (In.)	Clearance Under Hinge Pin (In.)	Angle of Dump at Maximum Height (Deg.)	Raising Time—Loaded (Sec.)	Lowering Time (Sec.)		MAKE AND MODEL	Brake Horsepower	Type of Fuel	Type	No. of Forward Speeds	No. of Reverse Speeds	Max. Forward Speed (Mph.)	Max. Reverse Speed (Mph.)		
			Outside Rear—Tires or Tracks	Outside Front—Tires or Tracks	Bucket on Ground	Bucket at Carrying Position																									
Allis-Chalmers HD-6G	Cr	74	80½		181			83½	21000	1⅔	1¼	80½			109	133½	45			13	Own	72	D	Conv	4	2	5.5	4.1	M	16670
HD-11G	Cr	84	95⅞		209			106¼	32000	2½	1⅞	95½			114	139	52			16	Own HD5'6G	111	D	Conv	6	3	5.7	4.4	M	28910
HD-16G	Cr	99½	111		232			116	48600	3¾	2⅝	111			122	147	59			20	Own 16000	150	D	TC	3	2	7.2	5.5	M	60000
HD-21G	Cr	106	111		254			129½	66500	5	3½	111			128	160	50			22	Own 21000	225	D	TC	2	1	7.8	4.3	M	70000
TL-10	Wh	73½			188½				10700				8100	3600	100	123	49	5.5	4.9		Own G226	77	G	TC	4	4	21.2	27.9	HV	
TL-12	Wh	73½	81	81	188½		81		11600				9500	4000	100	123	49	5.5	4.9		Own G226	77	G	TC	4	4			HV	
TL-12D	Wh	73½	81	81	188½		81		11750				9500	4000	100	123	49	5.5	4.9		Own D262	77	D	TC	4	4			HV	
TL-14	Wh	75½	84½	84½	195½		84		14410				12500	5300	99	125	49	6.5	5.0		Own G262	86	G	TC	4	4	22.3	29.3	HV	
TL-14D	Wh	75½	84½	84½	195½		84		14600				12500	5300	99	125	49	6.5	5.0		Own 6DA273	83	D	TC	4	4	22.3	29.3	HV	
TL-14A	Wh	75½	84½	84½	195½		84		14660				12500	5300	99	125	49	6.5	5.0		Own G262	86	G	TC	3	3	26.0	26.0	HV	
TL-14DA	Wh	75½	84½	84½	195½		84		14850				12500	5300	99	125	49	6.5	5.0		Own 6DA273	83	D	TC	3	3	26.0	26.0	HV	
TL-16	Wh	81	90	90	211		90		17500				17000	7000	108	138	48	8.2	6.0		Her 6GO339	109	G	TC	3	3	27.0	27.0	HV	
TL-16D	Wh	81	90	90	211		90		18000				17000	7000	108	138	48	8.2	6.0		Own 6000	104	D	TC	3	3	27.0	27.0	HV	
TL-20D	Wh	87	92	92	222½		93		23300				21000	9000	108	142	47	8.5	6.0		Own D516	130	D	TC	3	3	30.0	30.0	HV	
TL-10D	Wh	73½		81	188½		76		10850				8100	3600	100	123	49	5.5	4.9		Own D262	77	D	TC	4	4	21.2	27.9	HV	
Case W-5AG	Wh	70	66	68½	173	176	60		9067	1	⅞	69½	4500	3000	96	121	54	6.5	4.0		Own G188	57	G	TC	4	4	18.0	23.0	M	
W-9AD	Wh	78	89	89	211	221½	84½		15480	1⅝	1¼	90	11000	5500	102	132	54	7.5	4.0		Own 301D	80	D	TC	3	3	23.0	23.0	H	
W-9AG	Wh	78	89	89	211	221½	84½		15300	1⅝	1⅛	90	11000	5500	102	132	54	7.5	4.0		Own G284	80	G	TC	3	3	18.0	23.0	M	
W-10	Wh	87	93¼	93¼	228	234	84½		18082	2	1⅝	95½	13000	6500	102	133	48	7.5	4.0		Own 401D	100	D	TC	3	3	22.0	22.0	H	
420BG	Cr	63½	62	62		177		57	9391	¾		62⅝	3500		106		45	6.5	4.5	14	Own G148B	42	G	Conv	3	1	4.5	2.0	M	5815
800	Cr	90⅞	75	75	185⅛			73	20970	1½		81	19500	12100	98⅝	126⅝	45	7.0	5.0	15	Cont HD277	80	D	TC	4	4	6.0	7.2	H	20700
1000	Cr	98¼	75	75	197			79	23170	2	1¼	81	24800	15200	102½	133⅞	45	7.5	3.1	15	Cont JD382	100	D	TC	4	4	6.0	7.2	H	28000
440	Wh	66	77	54	168	177	75¼		4240	⅝	½	47½	1000		101	123	45	7.6	1.5		Own G148B	39	G	Conv	4	1	11.3	2.8	M	
540	Wh	64½	79			173½	75¼		4589	½	⅝	56½	2000		109½	129¾	45				Own G159	47	G	Conv	8	8	18.3	22.8	M	
W-3G	Wh	72	80½	64	170	181	75¼		7256	⅔	½	63⅜	2500		103	127¼	45	5.1	3.3		Own G159	52	G	TC	4	4	17.6	21.8	M	
600G	Cr	73¾	63	63	165			63	11530	1		62⅝			110	124	45	9.0	5.0	14	Cont F209	62	G	TC	4	4	6.6	7.2	H	15860
600D	Cr	73¾	63	63	165			63	11830	1		62⅝			110	124	45	9.0	5.0	14	Cont ED208	62	D	TC	4	4	6.6	7.2	H	15860
W-12	Wh	88	94¾	94¾	233	241	89		20940	2½	2	102	15000	9000	108	140	53	7.5	4.5		Own 451D	120	D	TC	3	3	24.0	24.0	H	
W-3D	Wh	72	80½	64	170	181	75¼		7350	⅔	½	63⅜	2500		103	127¼	45	5.1	3.3		Own G188D	52	D	TC	4	4	17.6	21.8	M	
W-5AD	Wh	70	66	68½	173	176	60		9127	1	⅞	69½	4500	3000	96	121	54	6.5	4.0		Own G188D	57	D	TC	4	4	18.0	23.0	M	
420BD	Cr	63½	62	62		137		57	9466	¾		62⅝	3500		106		45	6.5	4.5	14	Own 188D	40	D	Conv	3	1	4.5	2.0	M	5815
750	Cr	96½	73	73	175½			72⅞	17200	1⅝	1⅛	76½	16000	9780	96¼	123	45	7.5	4.0	13	Own A301D	70	D	TC	4	4	6.0	6.6		23000
310D	Cr	63½	62	62		137		57	9466	¾		62⅝	3500		106		45	6.5	4.5											
310	Cr	63½	62	62		137		57	9391	¾		62⅝	3500		106		45	6.5	4.5	14	Own G148B	42	G	Conv	3	1	4.5	2.0	M	5815
430	Wh	66	77	54	168	177	75¼		4315	⅝		47½	1000		101	123	45	7.6	1.5		Own G188D	40	D	Conv	4	1	11.3	2.8	M	
530	Wh	64½	79			173½	75¼		4664	½	⅝	56½	2000		109½	129¾	45	4.2	2.0		Own G188D	48	D	Conv	8	8	18.3	22.8	M	
Caterpillar 933	Cr	75⅝	70	70	168⅞		54	74½	16350	1½		70	5400		93⅝	119⅞	50	6.4	2.5	12	Own	52	D	Conv	4	2	5.5	3.7	M	
955	Cr	84⅝	80	80	188⅝		60	85¼	24800	1¾		80	11600		99¾	130¼	50	7.4	2.9	15	Own	100	D	PS	4	2	4.9	6.2	M	
977	Cr	90⅝	92	92	207⅞		74	106½	36270	2½		96	13100		112	144	50	7.4	2.7	18	Own	150	D	PS	5	4	4.7	5.7	M	
922	Wh	99¼	80⅝	80⅝	197	193	76		15850	1¼	1½	83½	7700		103	133	45					80	G	PS	4	4	18.9	20.4	AH	
944	Wh	109⅜	89½	89½	219½	222⅝	88		20975	2	1¾	93½	12300		109⅞	143¾	45					105	G	PS	4	4	24.1	30.0	AH	
922	Wh	99¼	80⅝	80⅝	197	193	76		15870	1¼	1½	83½	7700		103	133	45				Own	80	D	PS	4	4	18.9	20.4	AH	
944	Wh	109⅜	89½	89½	219½	222⅝	88		20945	2	1¾	93½	12300		109⅞	143¾	45				Own	105	D	PS	4	4	24.1	30.0	AH	
966	Wh	106	96	96	242⅜	236¾	94		26400	2¾	2⅝	104½	17400		114½	154¾	45				Own	135	D	PS	4	4	22.8	28.6	AH	
Eimco 123-60G	Cr	135	77		192½	187		88	31400	2	1¾	77	15000	20000	115	144	63	7.5	4.0	17	GM 5043⁴	100	D	Aut	4	4	6.5	6.5	M	33600
123-74G	Cr	120½	92		192½	187		88	32000	2¼	2	92	15000	20000	115	144	63	7.5	4.0	18	GM 5043⁴	100	D	Aut	4	4	6.5	6.5	M	33600
133-60G	Cr	125½	76		199½	192½		88	32300	2	1¾	76	15000	20000	109	144	63	7.5	4.0	16	GM 5043⁴	100	D	Aut	4	4	6.5	6.5	M	33600
133-74G	Cr	125½	90		199½	192½		88	33000	2	1¾	90	15000	20000	109	144	63	7.5	4.0	16	GM 5043⁴	100	D	Aut	4	4	6.5	6.5	M	33600
125	Cr	116	94		217	209		95	48000	3	2⅜	94	20000	26000	138	174½	50	10.0	5.0	20	GM 4080⁵	143	D	Aut	2	2	5.5	5.5	M	55000
135RD	Cr	121	90		224	216		95	49000	3	2⅜	90	20000	26000	132½	174½	50	10.0	5.0	16	GM 4080⁵	143	D	Aut	2	2	5.5	5.5	M	55000
131	Cr	131	94		217	209		95	49500	3	2⅜	94	25000	33000	138	174½	50	10.0	5.0	20	GM 7063-6V	205	D	Aut	2	2	6.0	6.0	M	62000
136RD	Cr	132	90		224	216		95	52000	3	2⅜	94	25000	33000	132½	174½	50	10.0	5.0	16	GM 7063-6V	205	D	Aut	2	2	6.0	6.0	M	62000
Euclid L-7	Wh	60½	42	48	121½	116½	48		5300	1/10	½	48	3000	2200	60		40	5.0	5.0		Cont F162	49	G	SA	2	2	11.0	11.0	H	
L-20	Wh	90½	91½	91½	232½	224½	94½		19300		2	92	12000	7000	106½	126½	50	6.6	4.2		Cont M330	116	G	TC	3	3	24.0	24.0	H	
L-20	Wh	90½	91½	91½	232½	224½	94½		19300		2	92	12000	7000	106½	126½	50	6.6	4.2		GM 3-71	107	D	TC	3	3	24.0	24.0	H	
Ford 19-131	Wh	61	63⅞	62¼	175⅝	187⅜	81½		8654	¾	5/16	71 2/17	2500	2500	101½	127⅝	46	4.5	2.5		Own 172	63	G	C-P	4	1	13.6	3.9	M	4631
19-131	Wh	61	63⅞	62¼	175⅝	187⅜	81½		8820	¾	5/16	71 2/17	2500	2500	101½	127⅝	46	4.5	2.5		Own 172	56	D	C-P	4	1	13.6	3.9	M	4705
International-Drott T-340	Cr	56	58	62	117	110		66	8966	¾	63	62	6600	3256	114	118	51			10	Own C135	45	G	Conv	5	1	5.9	1.9	M	5320
TD-427	Cr	66⅞	66	66	155	151		72⅝	14300	1½	9/10	71	12400	4450	117	118	61	6.7	5.0	12	Own C263	55	G	Conv	4	2	5.6	3.6	M	8610
TD6-426	Cr	66⅞	66	66	155	151		72⅝	14765	1½	7/8	71	12400	4650	117	118	61	6.7	5.0	12	Own D282	55	D	Conv	4	2	5.6	3.6	M	8770
TD9-426	Cr	72 1/16	75	75	180	175		81½	19590	1½	1¼	78	13400	6050	125	126	56	7.7	5.6	15	Own DT282	71	D	Conv	4	2	6.3	3.5	M	11720
TD15-420	Cr	78⅛	92	92	204	200		98½	33235	2¼	1¾	96	25200	9975	143	143	58	5.6	4.6	18	Own D554	115	D	Conv	6	6	5.8	7.1		20500
TD20-420	Cr	85	92	92	234	230		109	44335	3	2⅝	96	30800	13175	155	156	59	5.5	4.5	18	Own D691	134	D	Conv	6	6	7.0	8.4	M	27500
Michigan 12B	Wh	61	42¼	47⅝	122¼	120	51		6010	⅝	½	50	3000	1500	57	76	45	7.1	3.1		Wau 180GLB	44	G	PS	2	1	11.2	10.5	H	2000
75A	Wh	80	82½	80½	199	205	75		13410	1¼	1	79	8000	4000	96	115	55	7.2	5.0		Wau 190GL	77	G	PS	4	4	26.0	26.0	H	6000
125A	Wh	88	89¾	89¾	221	226	88		22160	2¼	2	91	13000	10000	99	124	54	9.2	6.0		Wau 135GK	127	G	PS	4	4	24.0	24.0	H	14000

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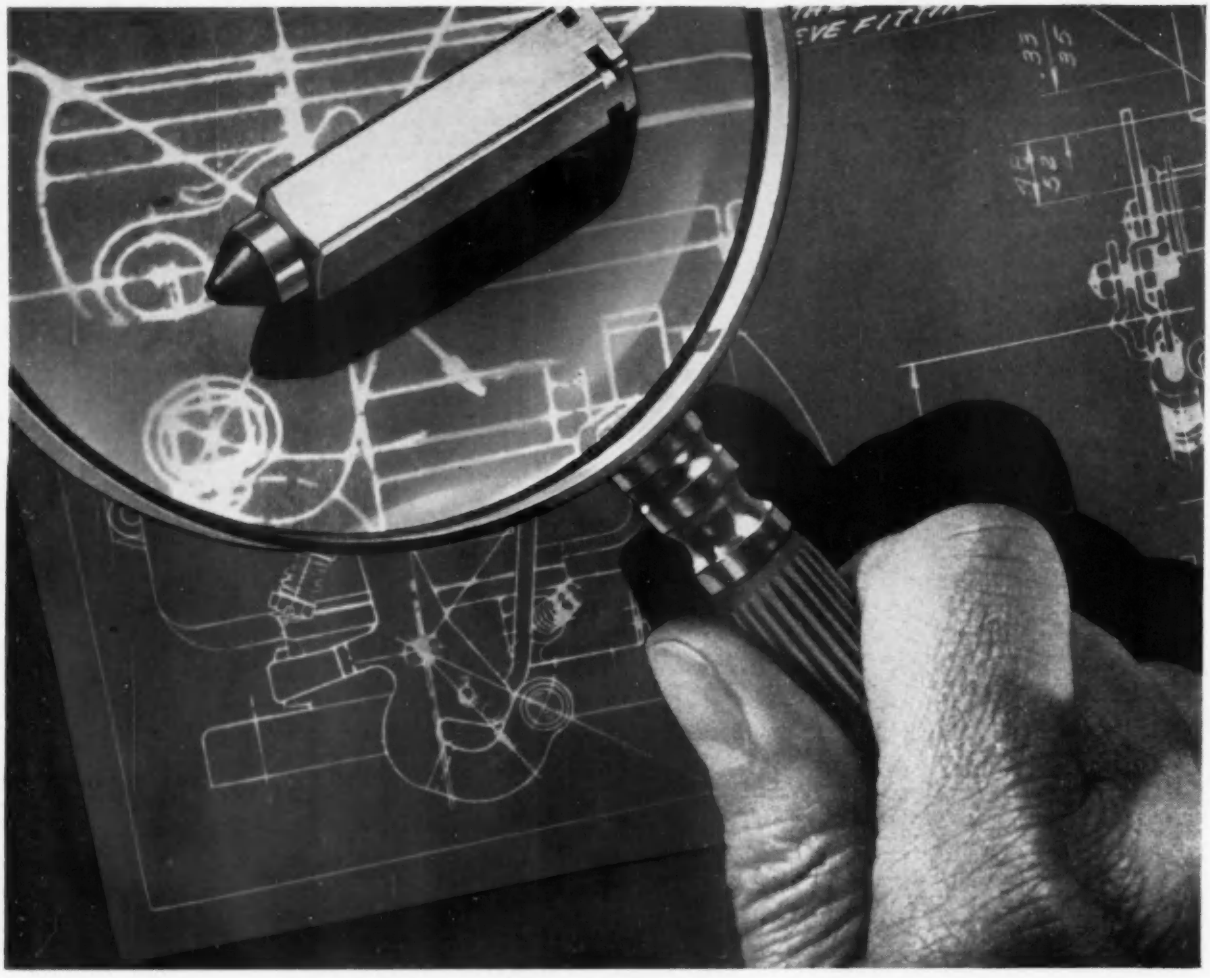

Meet the Holley needle that has proved its point!

In over 55 years, Holley engineers have tackled—and solved—many tough carburetion problems. One of the most frustrating has been carburetor flooding, caused by dirt particles found in the fuel supply which prevented steel or rubber-tipped needle valves from seating properly.

Holley engineers found the answer in a fuel inlet needle valve tipped with Viton*, a tough DuPont material with resilient properties that let the needle valve seat perfectly. More than two years of exhaustive testing have proved that the Viton Needle assures thousands of miles of trouble-free driving.

The Viton Needle is one more addition to a long list of design and development contributions which Holley has made to improve carburetion and ignition equipment for better car and truck performance.

Holley Carburetors and Ignition Equipment maintain the Holley reputation for precision, quality and dependable performance.

HOLLEY Carburetor Co.

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"We replace with LIPE CLUTCHES for tough, city stop-and-go service"

T. R. Benjamen, President, Food Transport, Inc., a subsidiary of Lease Plan International Corp., has this to say:

"For the past nine years I have used Lipe Clutches as replacements in all of my thirty trucks. Many of them go 45,000 to 50,000 miles in city delivery service on my tractors alone . . . and in one instance, 125,000 miles on a straight truck."

Stop-and-go . . . creep-and-crawl . . . uphill-downhill: Wherever terrain or traffic call for constant shifting, clutch maintenance costs are hard to keep in line.

Fleet owners from coast to coast have found the answer in Lipe DPB Clutches: More engagements between shop-stops. More total mileage. More miles per gallon of fuel. Lower cost per ton-mile.

Naturally, with results like these, one Lipe user tells another. And that's why . . .

***the trend is to* LIPE!**

*There is a Lipe Clutch to meet requirements of vehicles 18,000 lbs. G.V.W. and up; for torque capacities from 200 to 3000 ft. lbs. For application assistance and specific data, contact the Company direct.

LIPE ROLLWAY

Lipe CLUTCHES

LIPE-ROLLWAY CORPORATION
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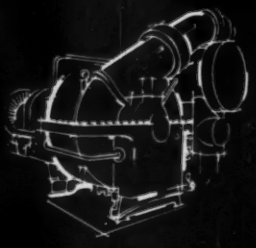
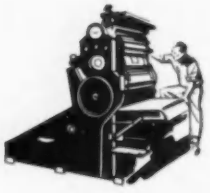
Busiest IN ANY BUSINESS



US® Custom engineered SHAFTS



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OVER 40 YEARS of specialized shaft "know-how" enables U.S. Axle to produce *exactly* the shafts you need, quickly and efficiently. Every phase of their precision processing — from raw material to scientific heat-treating and shot-peening for added toughness — is keyed to meeting your most exacting requirements. For top performance on any shaft application in your product, specify U.S. *Custom-Engineered* Shafts.

SUBMIT YOUR PRINTS AND SPECIFICATIONS *For* PROMPT QUOTATION

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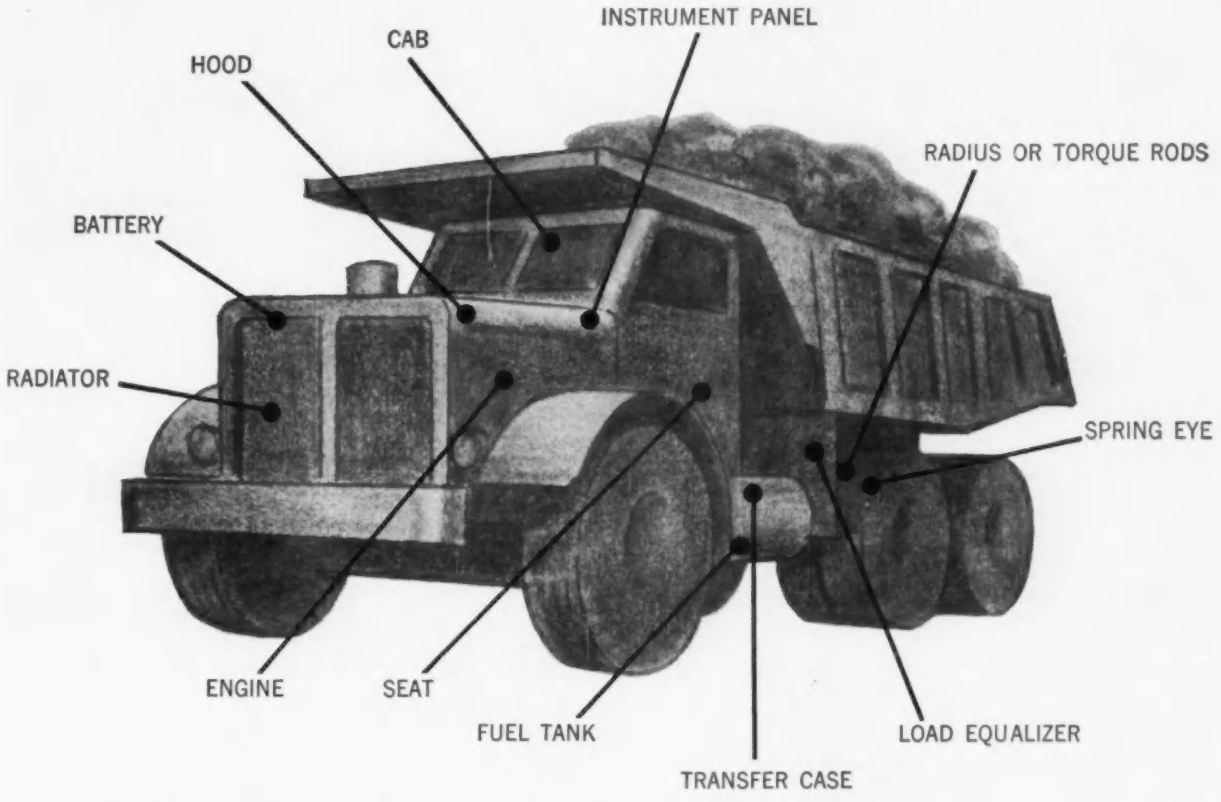


critical points for shock and vibration control

Engineered protection against shock and vibration pays off in *better performance*, *longer service life* and *less maintenance*. This is the experience of a growing number of off-highway, construction and farm equipment manufacturers.

By using flexible LORD Mountings and Joints at key points, they eliminate the efficiency-destroying effects of brutal jolts, vibration, distortion and misalignment.

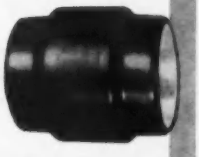
LORD elastomeric units provide positive cushioned action under severe conditions, outlast metal units and never need lubrication. Tough, service-proved flexing elements are specially compounded elastomers, permanently LORD-bonded to steel members. Design is simple and compact, requires no close tolerances, usually fits existing mating parts.

LORD Mountings and Joints are economical, can be specially engineered by LORD to your specific application. Their use eliminates need for "beefing-up" structures, thus permitting increased payloads.

Take advantage of LORD's unsurpassed experience—contact your nearest LORD Field Engineer or the Home Office, Erie, Pa.

Center Bonded Mountings provide flexible support for components, absorb heavy shock loads, isolate vibration and accommodate relative motion without loss of stability. Also feature high unit load capacity and patented rebound protection. Ask for Bulletin 712.

Dynaflex® Joints are long-lasting, lubrication-free bearings or pivots. They accommodate torsional and angular motion, absorb shock and reduce noise and wear. Ask for Bulletin 713.



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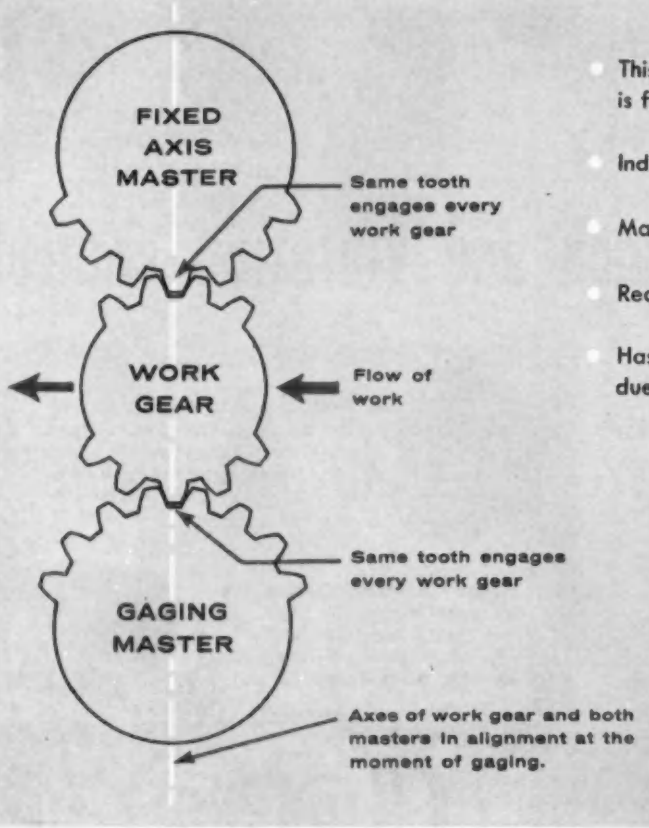
CUT INSPECTION COSTS

Check pin-size of 1,000 gears per hour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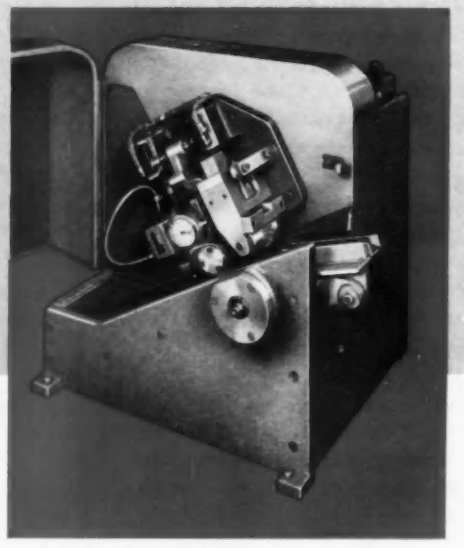
Same tooth engages every work gear
WORK GEAR
Flow of work
Same tooth engages every work gear
GAGING MASTER
Axes of work gear and both masters in alignment at the moment of gaging.

- This New Red Ring Gear Checker (Model GRF) is fully automatic.
- Independent of human error.
- May be fed manually or automatically.
- Requires a minimum of floor space.
- Has an exceptionally high Dependability Factor due to built-in safeguards such as those indicated.



If you mass-produce pinions ask for Bulletin C60-8

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SILICOLOGY

Studies in Silicones

HOW THESE TIME-TESTED MATERIALS CAN WORK FOR YOU

Silicones Go Into High Gear... To Back Up the New Car Warranty

Automobile designers sharpened their pencils for the 1961 models. The new "12-months-or-12,000-miles" warranty calls for much more than a new piece of paper. Needed is the kind of extra assurance that products such as silicones provide to back up performance.

With this new look at quality control, UNION CARBIDE Silicones are becoming more popular with designers, production engineers, dealers, and most important, with customers. Yet these high-performance products usually cost only a few cents more than most of their out-dated counterparts.

SILICONE RUBBER SETS NEW STANDARDS

Silicone Rubber, in various compounds, performs better than organic rubber in many areas. Among other things, it stands up under extremes of heat and cold, yet permits precision molding at favorable fabricating rates.

Silicone rubber sparkplug boots remain unaffected by water, heat—even ozone—for a maximum service life. Other compounds work just as well as dielectric coating on battery terminals and distributor caps. And a special electrically conductive silicone rubber is used as ignition wire core on many models, reducing car radio interference below annoying levels. In transmissions and differentials, silicone rubber seals and gaskets stay on the job in spite of attack from oil, hydraulic fluids, anti-freeze—under conditions of elevated temperature.

CLOSE-UP of compact engine in Chrysler Motor's new 1961 Valiant series.

LOOK WHAT SILICONE FLUIDS CAN DO

There are an amazing number of places where silicone fluids work to reduce production costs and to boost the performance of the finished car. We can mention only a few.

To begin, silicone anti-foams in coolants and cutting oils keep costly, efficiency-robbing foaming of these agents to a minimum. In the production of tires, rubber floor mats, molded rubber accessories and radiator hoses, there are silicone release agents which help the finished product slip easily and quickly from intricate molds without loss of detail.

In the car itself, silicone damping fluids frequently keep delicate instruments from bouncing around, even when road conditions are extremely rough. In certain cars, variable-speed drive systems for the cooling fans use silicone fluids for powering because these remain stable over wide ranges of temperature. Among other things, silicone fluids are excellent leveling agents for acrylic lacquers . . . all-weather lubricants for car weatherstripping . . . and excellent constant-viscosity lubricants in special applications.

MORE TO COME FROM RESEARCH

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THE 1961 VALIANT Two-Door Hardtop, a new model in Chrysler Motor's Compact Car V-200 series, uses Silicone Products in many areas to improve the reliability, durability, and reduce production costs.

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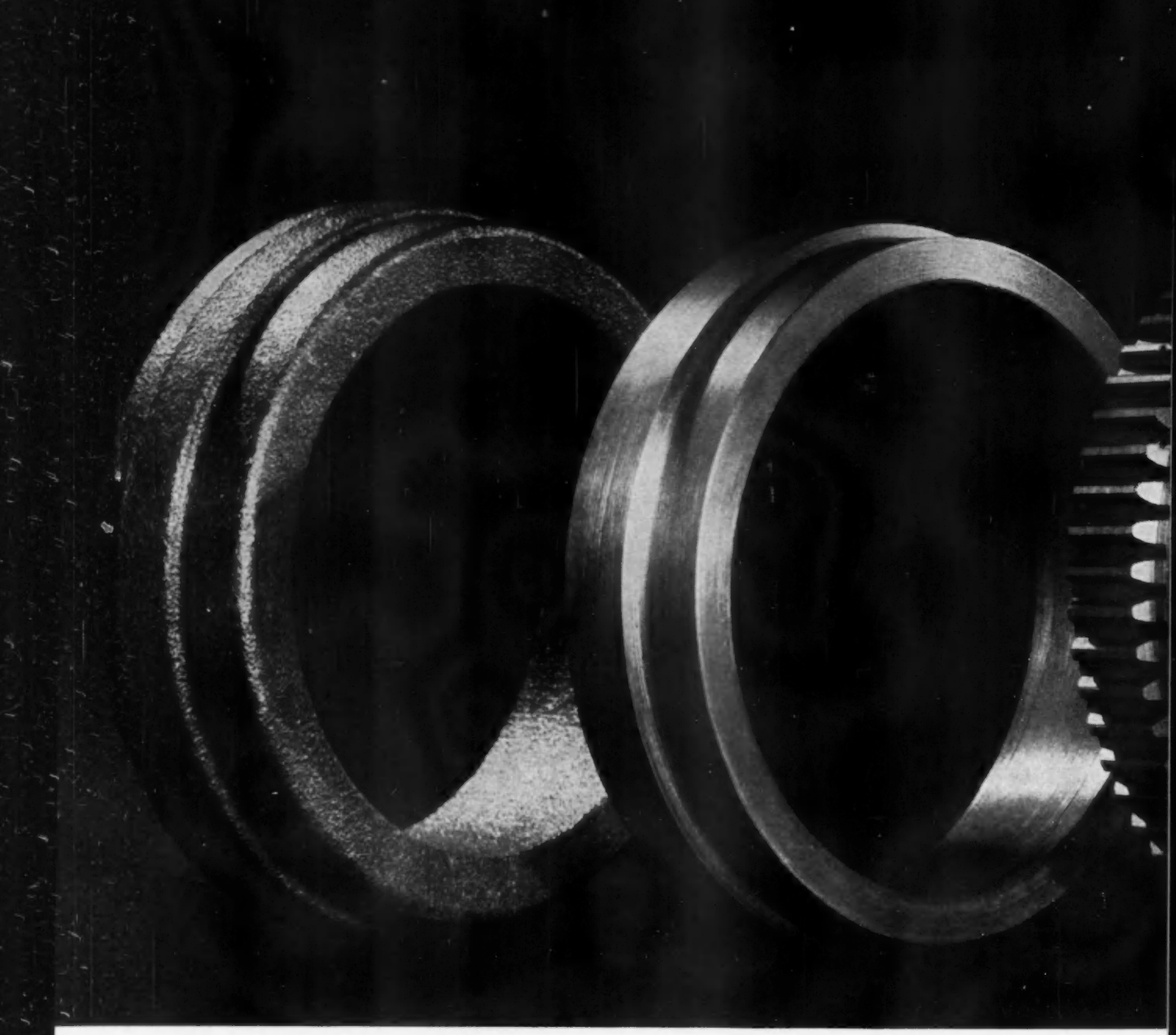

3-DIMENSIONAL METALLURGICAL TEAMS:

Republic's mill, field, and laboratory metallurgists and machining experts help you select and apply the metal best suited to requirements. Mail coupon for details on this confidential, obligation-free service.

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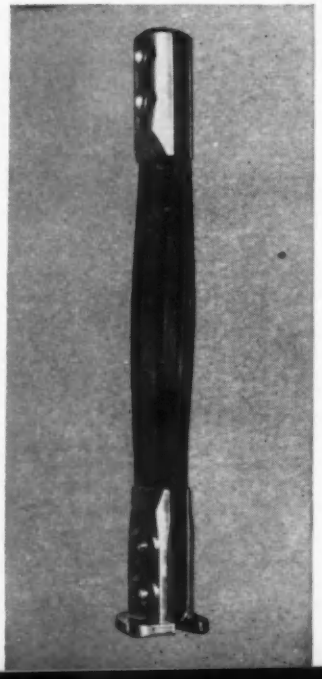

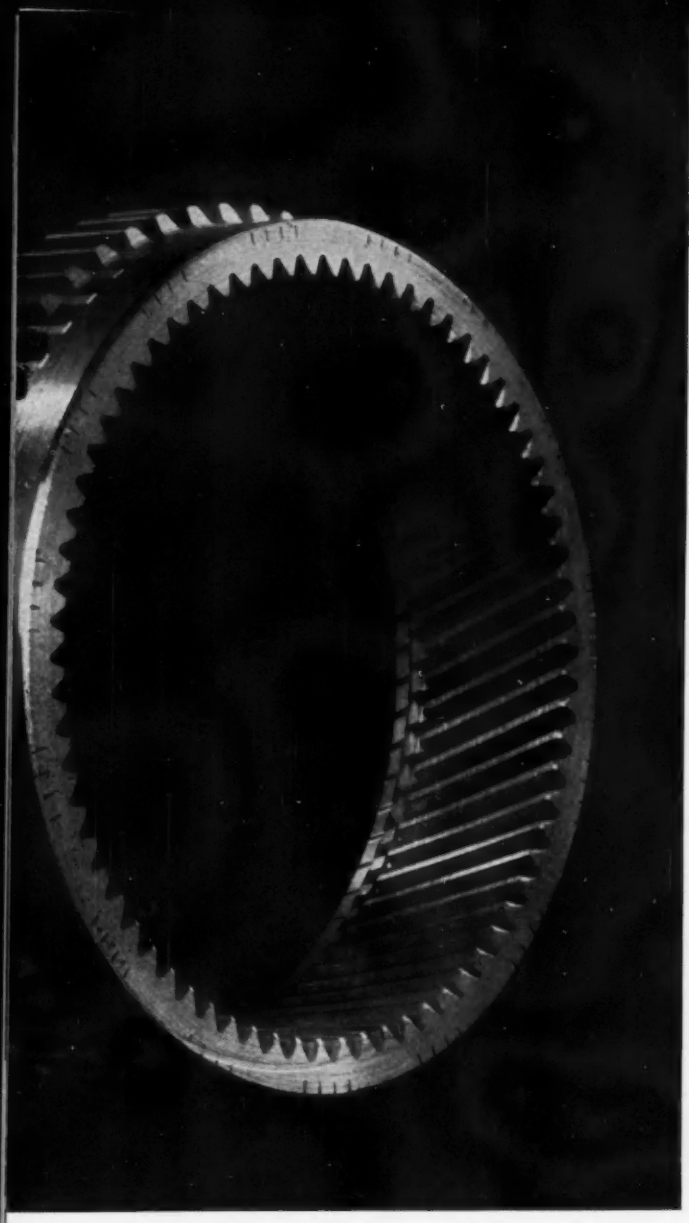

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Republic Hot Rolled Alloy Steel, Type 4047, was selected to assure strength and toughness with the best possible degree of machinability. The alloy is forged, rough machined, broached, hobbed, and heat treated. Uniform response to heat treatment provides hard surfaces around tough cores, and assures maximum resistance to abrasion, friction, and wear.

Records prove that the uniformity of this alloy steel has reduced reject rate and scrap loss. This, along with the high machinability, is holding unit cost of the planetary ring gear to an absolute minimum.

Our metallurgists will help you select and apply the most economical alloy steel capable of meeting your requirements. For information, contact your nearest Republic sales office or mail the coupon below. Please indicate if you would like a metallurgist to call.

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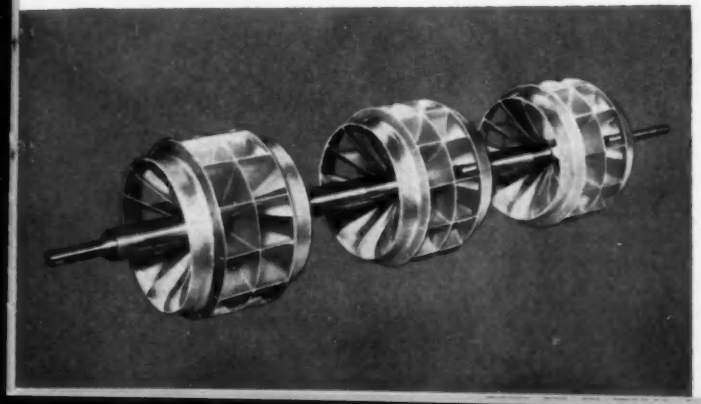

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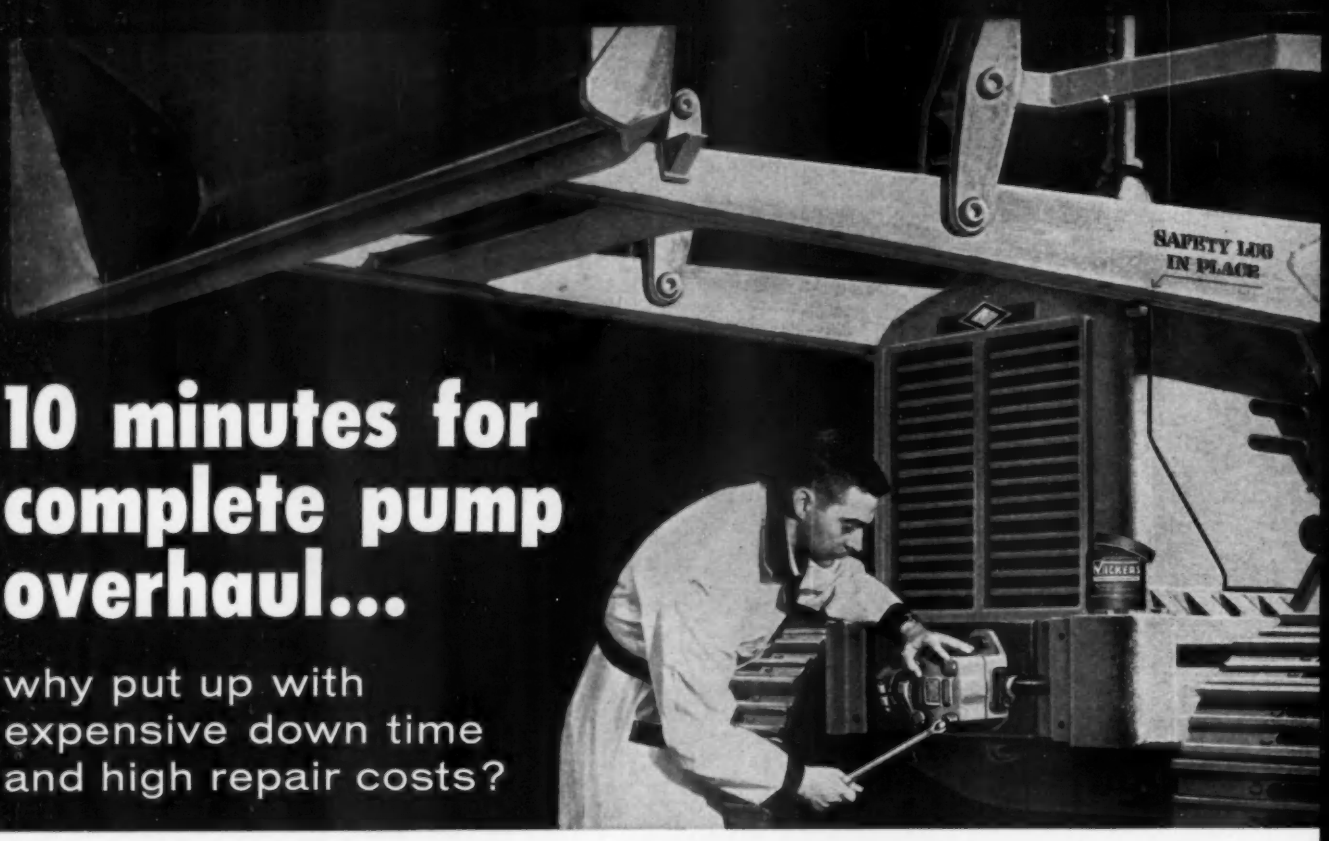

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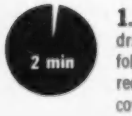
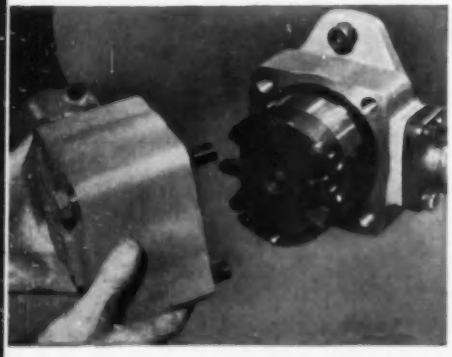
Without removing the pump from the vehicle, and without disconnecting hydraulic lines, the new Vickers "High Performance" pump can be completely overhauled by simply inserting a new pumping cartridge. The pumping cartridge contains all wearing parts in one replaceable unit and results in new pump performance. Write for Bulletin No. M5108 for performance characteristics.

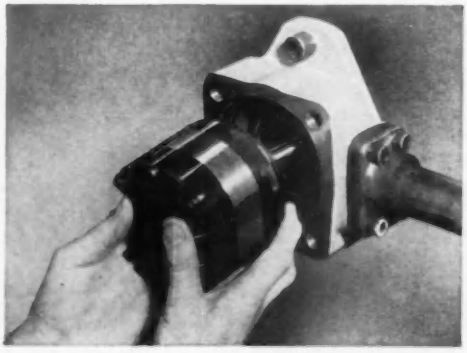


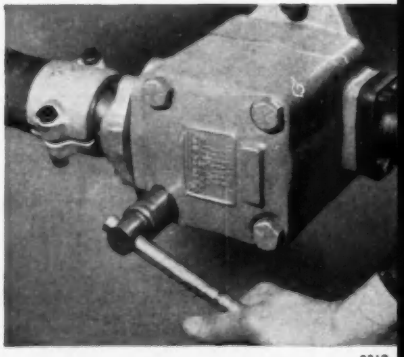
1. After safety, cleanliness and draining instructions have been followed per vehicle manufacturer's recommendations, take out four cover bolts and remove cover.

2. Take out old pump cartridge and insert new one. The cartridge includes cam ring, rotor, vanes, etc. —all parts in one assembly.

3. Replace cover and you have the equivalent of a new pump ready for long, trouble-free service.







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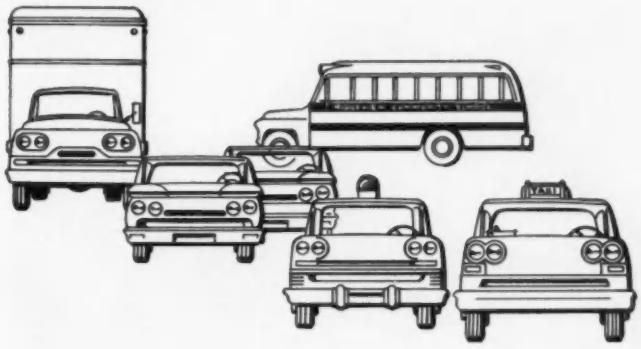


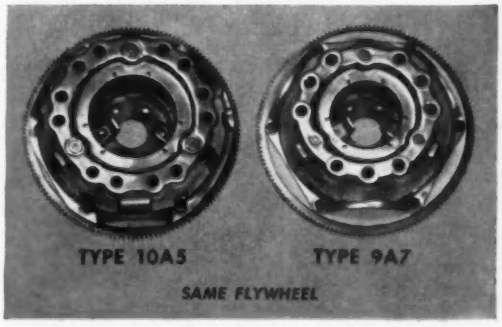
New Interchangeable BORG & BECK Clutches for Fleets, Police Cars, Taxis

More Capacity—no increase in bolt circle or flywheel size

Now there's no need to change the bell housing, flywheel, motor mounts or pedal linkage when converting cars for fleet, police, taxicab or other heavy duty service. Borg & Beck's new A5 clutches are designed specifically for these installations, as well as for trucks and school buses—provide the additional capacity required, yet are interchangeable with the next smaller size of Borg & Beck Types A7, A8 or A9 clutches.

Type 10A5, for example, mounts on the same flywheel bolt circle as Type 9A7—yet is rated at 265 ft.-lbs. torque capacity compared with 210 ft.-lbs. for the 9A7.

Like all Borg & Beck clutches, the new Type A5 clutches are designed, engineered and built to Borg & Beck's leadership standards for quality, performance and value. That's your assurance of complete satisfaction. Consult our engineers for full details.



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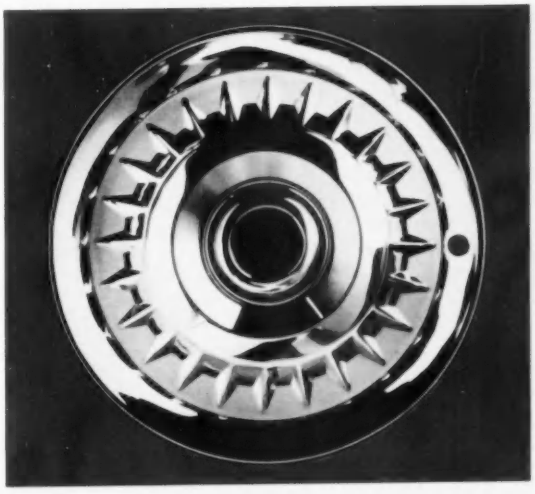
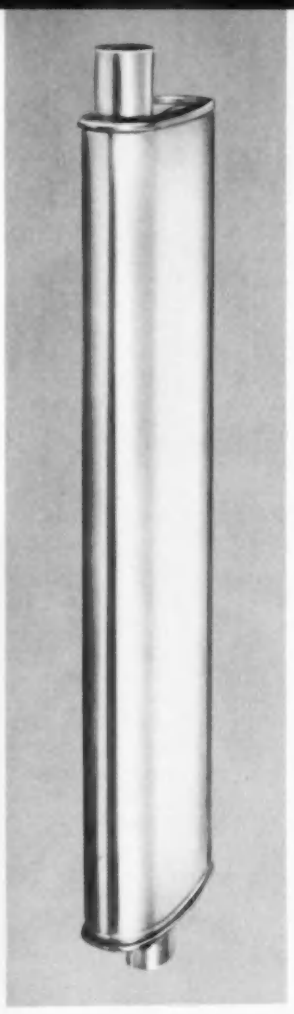
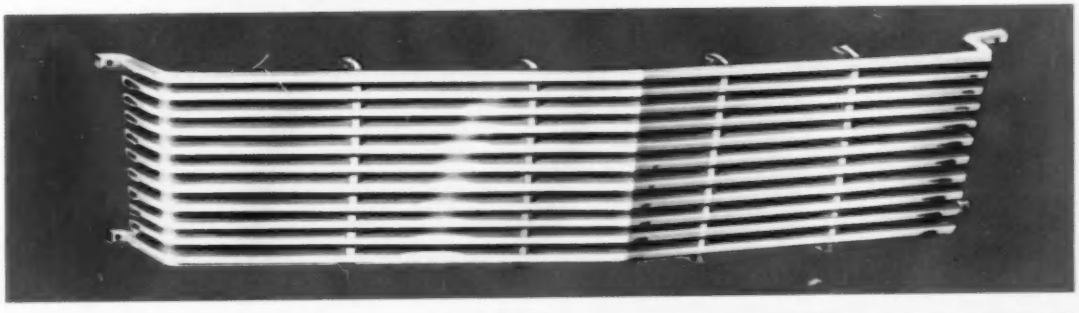
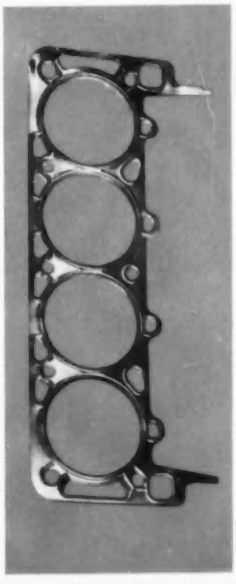
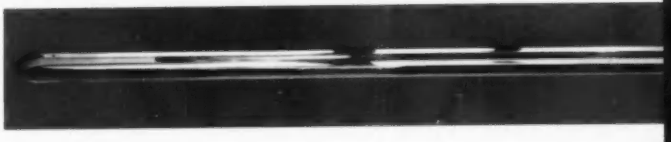
Automotive Horizons and Allegheny Stainless...



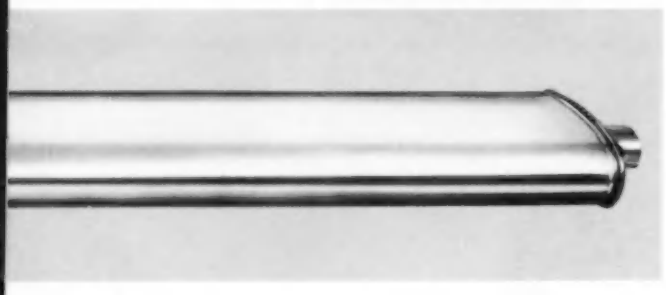








Twenty-five years ago, six special '36 Ford V-8's were made of Allegheny Metal, today's Allegheny Stainless. They proved that nothing lasts like Allegheny Stainless. On the car shown above, tires wore out, shocks had to be replaced, yet the stainless was like new. Gears and transmission wore out. Mileage passed 250,000. Still the stainless was like new. Now a veteran of four engines and 400,000 miles, the Allegheny Stainless is just as good as it was when it left the factory—always stainless, always like new.



This T-Bird is all Allegheny Stainless. The Budd Company, fabricators of Thunderbird bodies, made the parts on its regular production dies from Allegheny Ludlum stainless steel taken from a regular production run. Ford completed the car and rolled it from the regular assembly line for delivery to Allegheny Ludlum. Body work is Type 302 stainless with a special satin finish; muffler, bumpers are 302. All trim is Type 430, mirror finish.

This Stainless 'Bird won't lose its plumage

Twenty-five years from now, this 1960 stainless steel Thunderbird will still look showroom new. Time won't dull its luster any more than it has the special 1936 Ford V-8—also made from Allegheny Stainless.

These cars, built 24 years apart, were made for Allegheny Ludlum as practical demonstrators of the long-lasting good looks of Allegheny Stainless, its corrosion resistance, its strength, and its ease of fabrication and joining.

A-L will display the new car—along with its new-looking older sister—at auto shows, in fairs, and exhibits to stimulate consumer interest in the lasting value of the stainless now being used so effectively on American automobiles.

No other material can keep pace with stainless steel. When you need beauty and practicality...long life... unexcelled engineering performance...you can rely on Allegheny Stainless, by the leading stainless supplier to the automotive industry.

For even better cars tomorrow, Allegheny Ludlum's research is constantly developing new stainless steels and new uses for existing stainless steels.

Even Stainless pops up with problems..

As you would expect, the growth and development of even stainless steel automotive applications have not been without some dark moments. With Allegheny Ludlum's considerable background in the automotive applications, and even greater experience with stainless steel in a demanding variety of industrial environments, it came as a distinctly unpleasant surprise to learn that certain automotive trim parts of stainless were not standing up. Neither were other metals, but stainless must stand up.

BRIGHT ANNEAL FINISH

Isolated reports began to filter in from various locations throughout the country complaining of a frosty white etch appearing on Type 430 trim and molding components. Allegheny Ludlum's examination of the problem revealed that this condition was due to increasing use of road salt for snow removal. Other factors were processing changes made at the mill to meet the fabricators' demands for brighter strip finishes to reduce buffing costs.

Extensive research suggested that this condition was probably due to the final pickling operation given bright automotive strip. In processing, the strip was annealed conventionally which formed a thin oxide layer on the strip. Pickling was necessary to remove that oxidation. But heavy pickling tended to produce a duller finish. The problem was to eliminate or minimize the pickling that was needed to remove the oxide layer.

The automakers spelled out this problem: In addition to developing a finish that would resist this corrosive road condition, come up with a finish that was even brighter than before. Allegheny Ludlum analyzed its experience with smaller equipment where stainless steel was annealed in a vacuum or an inert atmosphere. The surface oxide was avoided and, therefore, so was the final pickling treatment. Result: better corrosion resistance than obtained in the past and a brighter finish.

The solution involves annealing stainless on a continuous, tonnage basis in a pure, dry hydrogen atmos-

..and here's how A-L solved them

phere which permits no oxidation or scaling, and keeps the surface clean and bright. A new Allegheny Ludlum furnace—the largest of its kind ever built in this country—went into full production on November 1, 1960, giving Allegheny Ludlum the tonnage capacity to service the automotive industry with Bright Annealed Allegheny Stainless Strip in all automotive stainless types in the brightest, most corrosion resistant state.

NEW—SUPER CORROSION RESISTANT A-L 433

Another problem faced recently was that of pitting and crevice corrosion on trim in certain, specific areas of the United States. After much investigation by the automotive companies and the stainless producers, it was believed that it was due to increased use, in combination, of deicing materials—salt, calcium chloride, slag, cinders—during winter in some sections of the country.

After extensive research in A-L's laboratories, a new steel to combat these conditions was developed. Tentatively called A-L 433 and patent applied for, it is an improved Type 430 alloy with the greatest corrosion resistance of any of the straight chrome stainless steels. Molybdenum is added to improve corrosion resistance against general pitting and copper is alloyed to enhance the moly in combatting crevice corrosion.

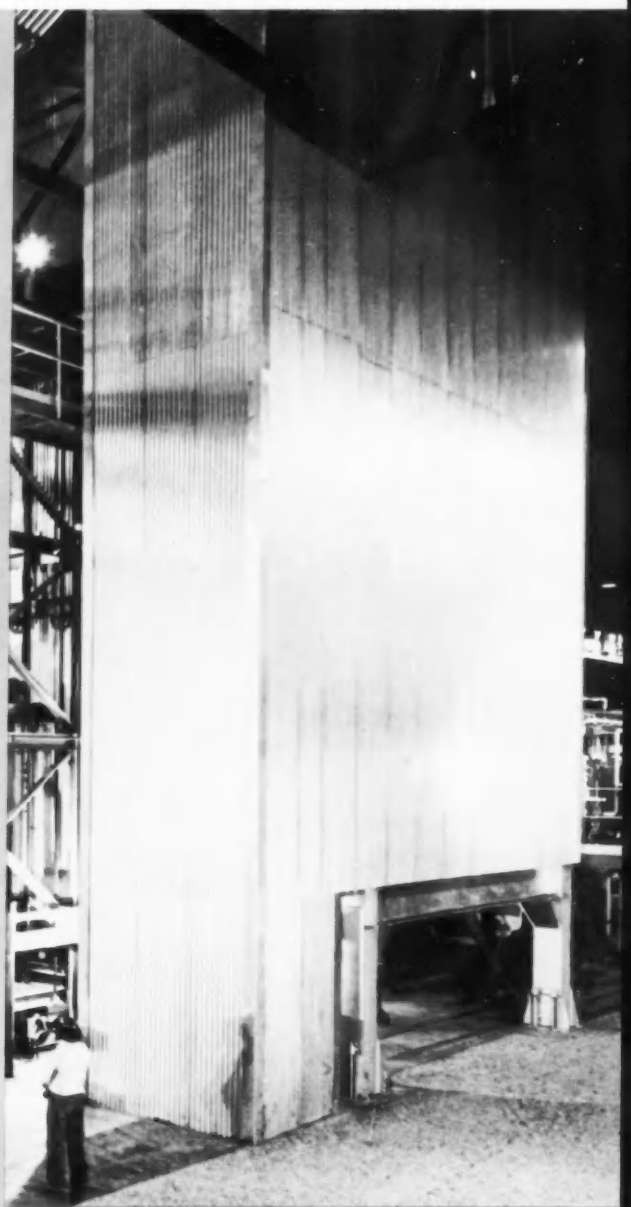
Available now, and at no premium in price over standard Type 430, A-L 433 should end the isolated complaints of pitting and crevice or joint corrosion, which has been called "red or back rust" in automotive slang.

MINIMUM ROPING TYPE 430

Another vexing problem reported, even though it was by no means universal, was roping. Some of the fabricators were running into this phenomenon which showed up as a lightly furrowed, wrinkled appearance, marring the surface of the finished part after severe stretching operations had been performed.

Heavy buffing, resulting in unusual costs, was required to eliminate these lines. Occasionally, it meant rejections. Considerable investigation and research has resulted in a special stainless steel strip with low roping characteristics. A combination of alloying and processing resulted in uniform ductility across the strip. A-L Type 430, low rope quality, is already in use in these applications.

And so, one by one, as unusual design, fabricating, and service conditions dictated, the problems of stainless in automotive service have been met head on and dealt with by Allegheny Ludlum in cooperation with the nation's leading automakers and fabricators. With its research and service teams, with its extensive production facilities, A-L expects to lead the way to the increased use of stainless steel in the automotive designs of the future.



Allegheny Bright Annealed Stainless Strip is produced in this special continuous annealing furnace, on line at Allegheny Ludlum since November 1, 1960. Bright annealed strip results in a more corrosion resistant and brighter finish.

STAINLESS...a growing force in today's automotive design

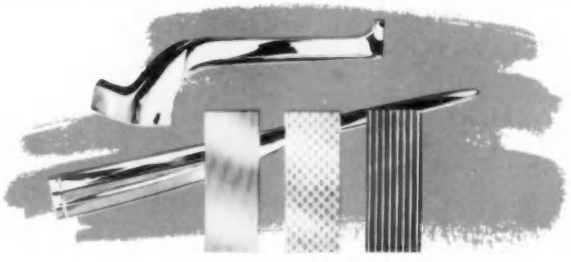
The continued improvement in stainless steels and the increased demand of today's motorists for attractively styled automobiles that stay attractive have combined to throw open the door to more and more stainless automotive applications. And longer warranties are pushing the trend to stainless. Here are some of the places you're most likely to find Allegheny Stainless on cars today... or maybe tomorrow.

Mufflers and Tailpipes

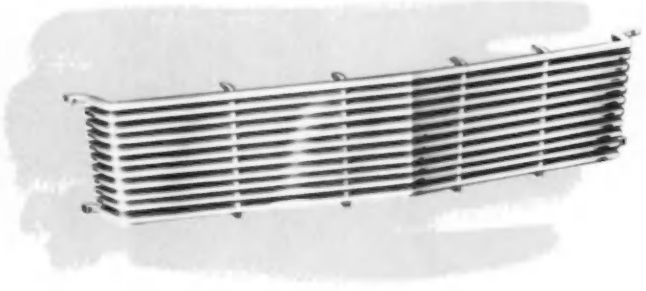
It's long been admitted by automotive people that a car shouldn't have one of its components operating in a hot, highly-corrosive environment without real corrosion resistance built into that part. But it's been a cost problem. Allegheny Ludlum's answer to the muffler problem is MF-1, a special, economical, ferritic stainless steel with good formability and corrosion resistance. Mufflers made from MF-1 have corrosion resistance built in. The stainless is solid. There will be mufflers made entirely from MF-1; others with MF-1 in the corrosion-susceptible internal wraps and baffles only. In either case, this corrosion resistance won't chip, peel, or burn off.

Trim

Nothing enhances the beautiful lines of an automobile like sparkling brightwork, and nothing is a bigger chore to care for if it begins to spot and pit, rust or peel. With Allegheny Stainless trim, the original beauty is a beauty forever, stainless clear through and as corrosion resistant in its old age as the day it came off the line. Highly formable, gleaming bright, protective and dent resistant...stainless steel.



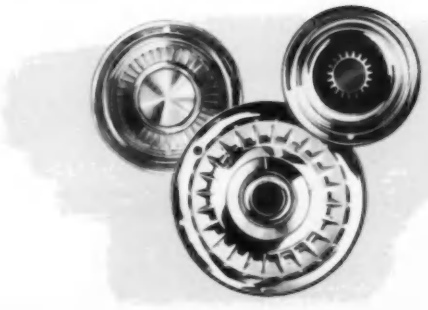
Grilles



Nothing establishes the appearance of a car as much as the "expression on its face"...its front end-grille design. And nothing has more to contribute to the beauty, prestige, and crisp styling of the grille design than stainless steel. Allegheny Stainless in bar form, tubing, strip or patterned sheet lends itself to economical fabrication techniques...roll forming, expanded metal, spot welding...all important in any fabrication with as much resultant waste as present grille forming techniques. Automotive engineers, using some of these newer processes, are re-evaluating stainless.

Hubcaps and Wheel Covers

Wheel covers and hubcaps demand a variety of metal characteristics and some are almost mutually incompatible...springiness, formability, dent resistance, brightness, corrosion resistance, scratch resistance, dimensional stability, stiffness...and more. Only one metal can come close to meeting all these requirements...stainless steel.



STAINLESS...both on and over the automotive horizon

More and more stainless steel will appear on the cars of tomorrow. Everything points to it...today's conditions require it, so will tomorrow's. There's a definite trend to longer warranty periods. Competition will probably cause these warranties to be extended, and extended yet again. Parts simply must last longer to make these warranties possible.

There's also a trend toward less owner-maintenance, such as sealed lubrication systems, sealed engine coolant and automatic air conditioning systems, self-adjusting brakes, and the like. Design features such as these will continue. Again, competition will probably force the extension of such systems, and their inevitable elaboration.

Both trends lead to increased use of Allegheny Stainless. When parts just have to stand up in warranty, the call is for stainless. And when less owner-maintenance develops, the corrosion resistance and foolproof characteristics of stainless begin to pay off. Such hidden applications as fuel tanks, floor pans, surge tanks, radiator systems, etc., are already receiving a good, hard look from engineers as future stainless applications.

Other requirements are advanced by design problems and improvements in automotive interiors. Gleaming, durable stainless steel makes a sales feature of the constant, close-up scrutiny of even the most discriminating auto passenger. It stands up under constant handling, scuffing and lack of polishing and provides the modern automotive interior with the ornamental brilliance that is uniquely stainless.

Characteristic of stainless, as well, is its remarkable ability to withstand elevated temperatures for long periods of time, and to resist corrosive environments under such conditions. As early developmental work has shown, this admirably fits it for service on the numerous anti-smog devices now vying for official recognition. With service temperatures as high as 1800 F, with lead oxide, sulfur, catalysts, and other chemical corrosion a factor, no other material can be actively considered aside from a stainless, heat-resisting steel.

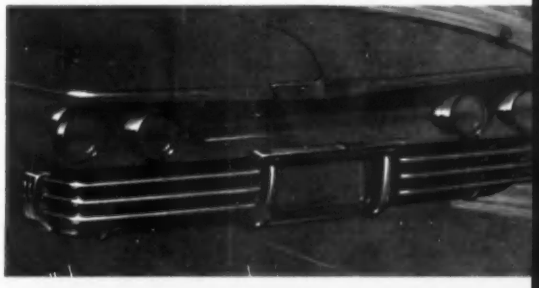
These are just a few thoughts on how Allegheny Stainless and the automotive designers will be working for motoring enjoyment...tomorrow or the next day.

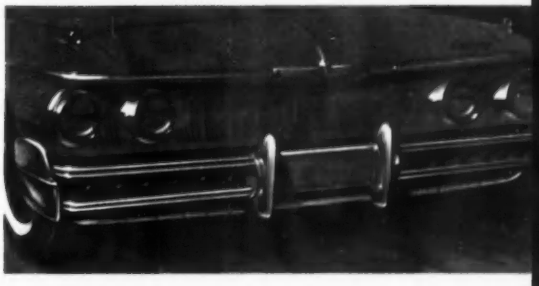
Bumpers

Possibly the most exciting design possibilities involve the front and rear of the modern automobile and the need for bumpers. Designers are faced with the task of integrating a massive section of metal into an overall design concept. Stainless steel can play a very great part in this effort, from both the esthetic and structural standpoints.

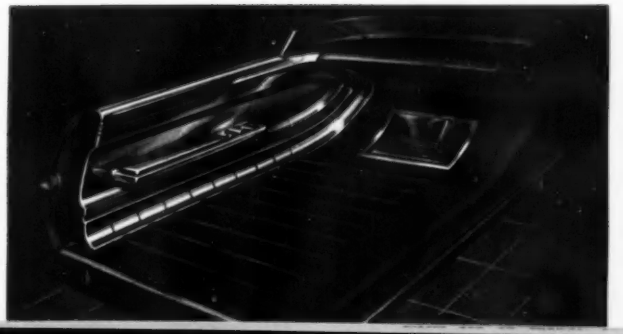
One interesting bumper technique is the fabricated bar bumper of stainless steel. Solid stainless bars offer an unmatched combination of beauty and strength, are easily formed, and may be worked into a variety of front-end designs featuring floating grilles and fabricated bumper guards. Stainless bars are repairable, by straightening, welding, buffing...all relatively simple operations.

Or, the protection and beauty of stainless steel may be obtained in a bumper with a metallurgically-bonded stainless cladding over the baser, underlying metal. Cladding offers the same exterior corrosion resistance and durable beauty as solid stainless designs. It won't scrape, peel, or rust. And, for maximum impact strength, and equal protection with lighter cross sections, some of the high strength stainless grades offer most interesting avenues for exploration.





Interiors



The hidden Value of Stainless in Automotive Design...

Ask a housewife about this strong and handsome metal ...about its useful life, its strength, its corrosion resistance. She'll be able to tell you...she lives with it daily and sees it everywhere. She knows its beauty and prestige-building appeal, its dollar-value economy.

But aside from these obvious advantages, stainless steel has hidden values for those who really know it well, an added desirability based on reasons both functional and esthetic...practical and personal.

IN DESIGN

...to designers, stainless steel has a highly utilitarian character. Designers feel better about working with its honest nobility. They prefer its reliability, its mathematical predictability, its strength, the look and feel of it, and its uniquely masculine character. It's a designer's metal.

IN STYLING

...to stylists, the rich luster and high prestige of stainless steel provide an irresistible creative challenge. They are intrigued by the limitless possibilities offered by its variety of textured surfaces and finishes, its ease of forming, bending, shaping. It's an expressive metal... a stylist's metal.

IN MARKETING

...salesmen and marketing men know the value of stainless in automotive design. They know a customer's reaction to it. They know the universal appeal of stainless, the built-in customer acceptance based on its unqualified success in kitchen and other home appliances, in sporting goods, jewelry, and cutlery. It helps sell. It's a salesman's metal...a marketing metal.

AL ALLEGHENY LUDLUM STEEL CORPORATION

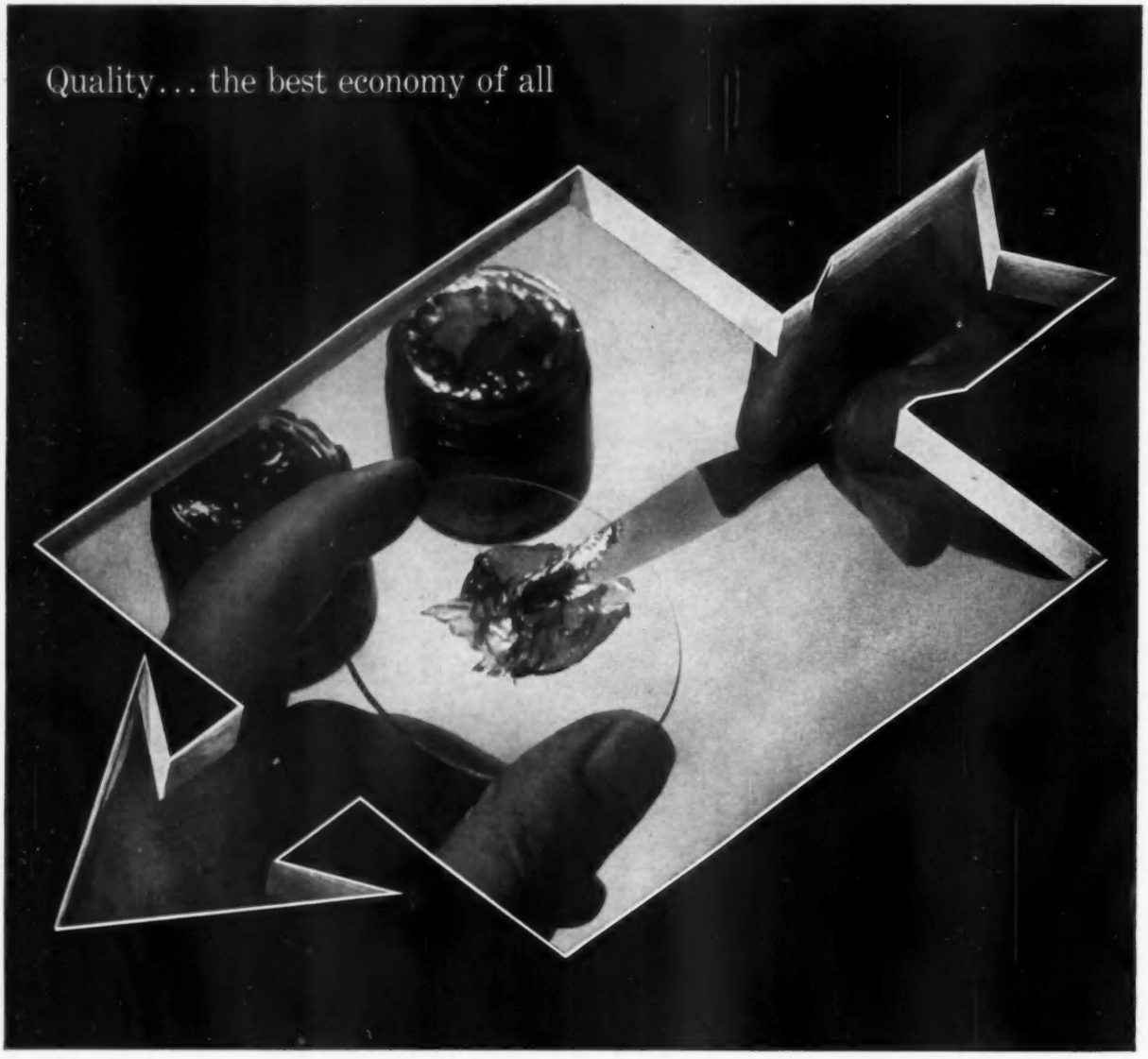
General Headquarters: Oliver Building, Pittsburgh 22, Pa.

EVERY FORM OF STAINLESS...EVERY HELP IN USING IT

Litho in U.S.A.

1961 AUTOMOTIVE INDUSTRIES STATISTICAL ISSUE

ECONOMIC DATA for MANAGEMENT section



It's a multipurpose grease . . . but *how* multipurpose?

You can't "feel" the answer. Any "multipurpose" grease you buy is a compromise. Lubrication engineers say it *can't possibly be* the best lubricant both for high speeds and low loads . . . and for low speeds and heavy loads. It's *got to be* somewhere in between, so that it can do both jobs fairly well.

What you should do is decide on *which* multipurpose grease is best for you. This is a decision for an expert team—you and your Sun representative—because you have to consider many variables.

We feel, justifiably, that one of Sun's Prestige Multipurpose Greases is designed with that wide range of applications you're looking for. They last longer under pressure, water, heat, and other abuses. They bear investigation. To start enjoying the real economy of quality, call that Sun man today—or write direct to SUN OIL COMPANY, *Philadelphia 3, Pa. Dept. AA-3. In Canada: Sun Oil Company Limited, Toronto and Montreal.*

SUNOCO®

MAKERS OF FAMOUS CUSTOM-BLENDED BLUE SUNOCO GASOLINES

1960 Census of Population Compared with 1950*

Showing Population, Density per Sq. Mile, Households, and State Rank.

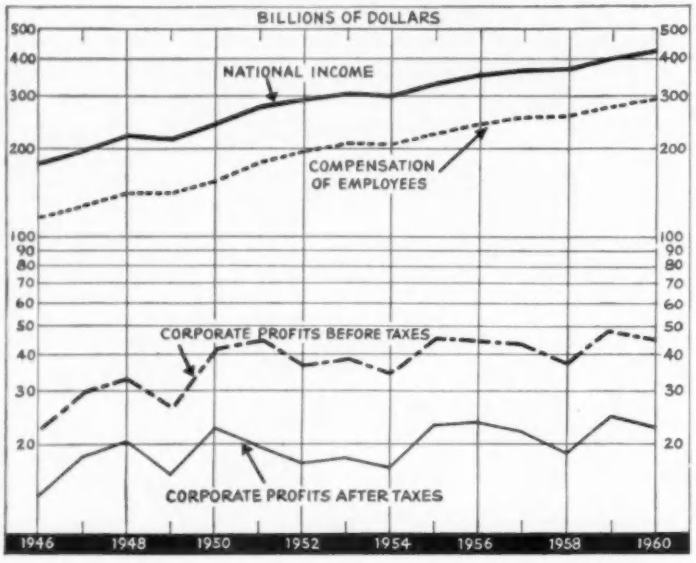
As reported by the Bureau of the Census, U. S. Department of Commerce.

DIVISIONS	POPULATION Number 1960	POPULATION Number 1950	Increase, 1960 over 1950 Number	Increase, 1960 over 1950 Per Cent	Density per Sq. Mile	HOUSING UNITS Number 1960	HOUSING UNITS Number 1950	HOUSING UNITS Per Cent Increase	RANK BY Population	RANK BY Per Cent Gain
New England	10,509,367	9,314,453	1,194,914	12.8	.....	3,531,063	2,879,409	23	8	7
Middle Atlantic	34,168,452	30,163,533	4,004,919	13.3	.....	11,302,480	9,171,773	23	2	6
East North Central	36,225,024	30,399,368	5,825,656	19.2	.....	11,699,280	9,334,211	25	1	4
West North Central	15,394,115	14,061,394	1,332,721	9.5	.....	5,165,805	4,411,435	17	6	8
South Atlantic	25,971,732	21,182,335	4,789,397	22.6	.....	8,128,997	5,996,267	36	3	3
East South Central	12,050,126	11,477,181	572,945	5.0	.....	3,621,509	3,195,164	13	7	9
West South Central	16,951,255	14,537,572	2,413,683	16.0	.....	5,550,221	4,462,354	24	5	5
Mountain	6,855,060	5,074,998	1,780,062	35.1	.....	2,239,961	1,608,421	39	9	2
Pacific	21,198,044	15,114,964	6,083,080	40.2	.....	7,342,525	5,078,042	45	4	1
STATES										
Alabama	3,266,740	3,061,743	204,997	6.7	63.5	971,816	843,857	15	19	29
Alaska	226,167	128,643	97,524	75.8	0.4	65,807	33,072	99	51	35
Arizona	1,302,161	749,587	552,574	73.7	11.3	417,055	240,750	73	35	14
Arkansas	1,786,272	1,909,511	−123,239	−6.5	33.8	587,990	575,163	2	31	50
California	15,717,204	10,586,223	5,130,981	48.5	99.2	5,477,197	3,590,660	53	2	1
Colorado	1,753,947	1,325,089	428,858	32.4	16.7	598,445	436,226	37	33	22
Connecticut	2,535,234	2,007,280	527,954	26.3	513.3	820,706	611,162	34	25	15
Delaware	446,292	318,085	128,207	40.3	224.0	144,431	97,013	49	47	33
Dist. of Columbia	763,956	802,178	−38,222	−4.8	.....	262,944	229,738	14	40	49
Florida	4,951,560	2,771,305	2,180,255	78.7	90.1	1,857,672	952,131	95	10	2
Georgia	3,943,116	3,444,578	498,538	14.5	67.2	1,175,950	966,672	22	16	17
Hawaii	632,772	499,794	132,978	26.6	96.8	165,628	120,606	37	44	32
Idaho	667,191	588,637	78,554	13.3	8.0	225,539	188,328	20	43	40
Illinois	10,081,158	8,712,176	1,368,982	15.7	179.0	3,286,149	2,671,647	23	4	7
Indiana	4,662,498	3,934,224	728,274	18.5	128.1	1,511,571	1,232,314	23	11	11
Iowa	2,757,537	2,621,073	136,464	5.2	48.8	907,151	811,912	12	24	31
Kansas	2,178,611	1,905,299	273,312	14.3	26.3	754,777	625,148	21	28	25
Kentucky	3,038,156	2,944,806	93,350	3.2	75.6	934,124	820,141	14	22	37
Louisiana	3,257,022	2,683,516	573,506	21.4	71.6	983,667	777,672	26	20	13
Maine	969,265	913,774	55,491	6.1	31.1	365,783	311,441	17	36	43
Maryland	3,100,689	2,343,001	757,688	32.3	311.3	940,642	689,116	36	21	10
Massachusetts	5,148,578	4,690,514	458,064	9.8	650.1	1,696,448	1,400,185	21	9	20
Michigan	7,823,194	6,371,766	1,451,428	22.8	136.4	2,558,369	1,971,842	30	7	6
Minnesota	3,413,864	2,982,483	431,381	14.5	42.4	1,122,082	918,434	22	18	21
Mississippi	2,178,141	2,178,914	−773	.....	45.8	630,222	609,329	3	29	48
Missouri	4,319,813	3,954,653	365,160	9.2	61.8	1,494,795	1,268,354	18	13	23
Montana	674,767	591,024	83,743	14.2	4.6	234,682	194,256	21	42	39
Nebraska	1,411,330	1,325,510	85,820	6.5	18.3	474,786	417,245	14	34	38
Nevada	285,278	160,083	125,195	78.2	2.6	102,694	56,515	82	50	34
New Hampshire	606,921	533,242	73,679	13.8	66.5	224,268	190,563	18	46	41
New Jersey	6,066,782	4,835,329	1,231,453	25.5	800.2	2,006,683	1,501,473	34	8	8
New Mexico	951,023	681,187	269,836	39.6	7.8	284,225	199,706	42	37	26
New York	16,782,304	14,830,192	1,952,112	13.2	346.2	5,699,538	4,633,806	23	1	3
North Carolina	4,556,155	4,061,929	494,226	12.2	92.2	1,322,790	1,058,367	25	12	18
North Dakota	632,446	619,636	12,810	2.1	9.0	195,125	175,769	11	45	46
Ohio	9,706,397	7,946,627	1,759,770	22.1	235.0	3,052,058	2,402,565	27	5	5
Oklahoma	2,328,284	2,233,351	94,933	4.3	33.4	818,266	715,691	14	27	36
Oregon	1,768,687	1,521,341	247,346	16.3	18.3	621,240	524,003	19	32	28
Pennsylvania	11,319,366	10,498,012	821,354	7.8	249.3	3,596,259	3,036,494	18	3	9
Rhode Island	859,488	791,896	67,592	8.5	798.7	287,292	244,147	18	39	42
South Carolina	2,382,594	2,117,027	265,567	12.5	77.9	681,566	557,672	22	26	27
South Dakota	680,514	652,740	27,774	4.3	8.9	217,089	194,573	12	41	45
Tennessee	3,567,089	3,291,718	275,371	8.4	84.6	1,085,347	921,837	18	17	24
Texas	9,579,677	7,711,194	1,868,483	24.2	36.2	3,160,298	2,393,828	32	6	4
Utah	890,627	688,862	201,765	29.3	10.8	263,633	200,554	31	38	30
Vermont	389,881	377,747	12,134	3.2	41.7	136,566	121,911	12	48	47
Virginia	3,966,949	3,318,680	648,269	19.5	97.7	1,167,137	901,483	29	14	12
Washington	2,853,214	2,378,963	474,251	19.9	42.4	1,012,653	809,701	25	23	19
West Virginia	1,860,421	2,005,552	−145,131	−7.2	76.7	575,865	544,075	6	30	51
Wisconsin	3,951,777	3,434,575	517,202	15.1	71.8	1,291,133	1,055,843	22	15	16
Wyoming	330,066	290,529	39,537	13.6	3.4	113,688	92,086	23	49	44
Total—United States	179,323,175	151,325,798	27,997,377	18.5	.....	58,881,841	46,137,076	27	....	....

— Denotes decrease. * Does not include the Armed Forces overseas and their dependents.

FINANCIAL

NET CORPORATE PROFITS DECLINE 4% IN 1960



Purchasing Power of the 1947-1949 Dollar

Office of Business Economics, U. S. Department of Commerce

1960	As Measured by — Wholesale Prices	Consumer Prices
January	83.8	79.7
February	83.8	79.6
March	83.3	79.6
April	83.3	79.2
May	83.5	79.2
June	83.7	79.1
July	83.5	79.0
August	83.9	79.0
September	83.9	78.9
October	83.6	78.6
November	83.6	78.5
December	83.7	78.4
Monthly Averages		
1960	83.6	79.1
1959	83.7	80.3
1958	83.9	81.0
1957	85.0	83.2
1956	87.5	86.1
1955	90.3	87.3
1954	90.7	87.1
1953	90.8	87.4
1952	89.6	88.1
1951	87.1	90.1
1950	97.0	97.3
1949	100.8	98.2
1948	95.8	97.3
1947	103.7	104.7

National Income by Selected Distributive Shares, 1946-1960

All data are in Millions of Dollars

Based on data from the Office of Business Economics, U. S. Department of Commerce

	National Income	Compensation of Employees	Corporate Profits: Before Taxes	Corporate Profits: Tax Liability	Corporate Profits: After Taxes	Corporate Dividends	Retained Profits	Net Profits as % of Nat. Income
1946	$180,879	$117,697	$22,551	$9,111	$13,440	$5,784	$7,656	7.43
1947	198,177	128,757	29,525	11,283	18,242	6,521	11,721	9.20
1948	223,487	140,969	33,000	12,483	20,517	7,243	13,274	9.18
1949	217,690	140,834	26,370	10,375	15,995	7,473	8,522	7.35
1950	241,876	154,190	40,628	17,865	22,763	9,208	13,555	9.41
1951	279,313	180,327	42,153	22,447	19,706	9,029	10,677	7.05
1952	292,155	195,012	36,691	19,459	17,232	8,954	8,278	5.90
1953	305,573	208,812	38,311	20,222	18,089	9,225	8,864	5.92
1954	301,794	207,595	34,061	17,220	16,841	9,839	7,002	5.58
1955	330,206	223,852	44,862	21,827	23,035	11,215	11,820	6.97
1956	350,836	242,502	44,683	21,227	23,456	12,132	11,324	6.68
1957	366,943	255,499	43,208	20,922	22,286	12,588	9,698	6.07
1958	367,686	257,039	37,698	18,614	19,084	12,364	6,720	5.19
1959	399,648	277,821	47,021	23,196	23,825	13,363	10,462	5.96
1960*	417,700	294,410	44,000	21,100	22,900	14,000	8,900	5.48

* Estimated on basis of returns for first three quarters.

Installment Credit Outstanding, End of Year

Short and Intermediate-term. All data are in Millions of Dollars
As reported by the Federal Reserve Board

Type of Credit	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951
Automobile paper	$17,866	$16,549	$14,131	$15,409	$14,459	$13,472	$9,809	$9,835	$7,733	$5,972
Other consumer-goods paper	11,215	10,476	9,007	8,692	8,510	7,634	6,751	6,779	6,174	4,880
Repair and modernization loans	3,038	2,784	2,145	2,091	1,895	1,689	1,616	1,610	1,385	1,085
Personal loans	11,192	10,043	8,582	7,903	6,963	6,163	5,392	4,781	4,111	3,357
Total—Installment Credit	$43,261	$39,852	$33,865	$34,095	$31,827	$28,958	$23,568	$23,005	$19,403	$15,294

EARNINGS OF PRODUCTION WORKERS IN MANUFACTURING

As reported by the Bureau of Labor Statistics

Hourly and Weekly Earnings

All Manufacturing

Month	Average Earnings Hourly	Average Earnings Weekly	Real Weekly Earnings‡	Avg. Hours per Week
		1960		
Jan.	$2.29	$92.29	$73.60	40.3
Feb.	2.29	91.14	72.56	39.8
Mar.	2.29	90.91	72.32	39.7
Apr.	2.28	89.60	71.00	39.3
May	2.29	91.37	72.34	39.9
June	2.29	91.60	72.41	40.0
July	2.29	91.14	71.99	39.8
Aug.	2.27	90.35	71.37	39.8
Sept.	2.30	91.08	71.83	39.6
Oct.	2.30	91.31	71.73	39.7
Nov.	2.30	90.16	70.77	39.2
Dec.	2.32	90.02	70.60	38.8
Average	$2.29	$90.91	$71.88	39.7

Monthly Averages

Year				
1960	$2.29	$90.91	$71.88	39.7
1959	2.22	89.50	71.79	40.3
1958	2.13	83.50	67.61	39.2
1957	2.07	82.39	68.54	39.8
1956	1.98	79.99	67.12	40.4
1955	1.88	76.52	66.83	40.7
1954	1.81	71.86	62.60	39.7
1953	1.77	71.69	62.67	40.5
1952	1.67	67.97	59.88	40.7
1951	1.59	64.71	58.30	40.7
1950	1.46	59.33	57.71	40.5

Durable Goods

Month				
		1960		
Jan.	$2.46	$100.86	$80.43	41.0
Feb.	2.45	98.98	78.80	40.4
Mar.	2.45	98.74	78.55	40.3
Apr.	2.44	97.36	77.15	39.9
May	2.44	98.58	78.05	40.4
June	2.45	98.98	78.24	40.4
July	2.45	97.76	77.22	39.9
Aug.	2.43	97.20	76.78	40.0
Sept.	2.46	98.15	77.40	39.9
Oct.	2.46	98.89	77.68	40.2
Nov.	2.46	97.42	76.47	39.6
Dec.	2.47	97.07	76.13	39.3
Average	$2.45	$98.33	$77.74	40.1

Monthly Averages

Year				
1960	$2.45	$100.86	$80.43	41.0
1959	2.38	97.01	77.86	40.7
1958	2.28	90.06	72.92	39.5
1957	2.20	88.66	73.76	40.3
1956	2.10	86.31	74.28	41.1
1955	2.01	83.21	72.67	41.4
1954	1.92	77.18	67.23	40.2
1953	1.87	77.23	67.51	41.3
1952	1.77	73.46	64.72	41.5
1951	1.67	69.47	62.58	41.6
1950	1.54	63.32	61.60	41.2

Motor Vehicles (Inc. Parts)

Month				
		1960		
Jan.	$2.84	$124.11	$98.97	43.7
Feb.	2.81	116.62	92.85	41.5
Mar.	2.79	113.83	90.56	40.8
Apr.	2.74	108.23	85.76	39.5
May	2.77	113.85	90.14	41.1
June	2.78	112.87	89.22	40.6
July	2.78	111.20	87.83	40.0
Aug.	2.80	108.64	85.81	38.8
Sept.	2.87	116.52	91.89	40.6
Oct.	2.87	119.39	93.79	41.6
Nov.	....	.....	.....	....
Dec.	....	.....	.....	....
Average	$2.80	$114.53	$90.68	40.8

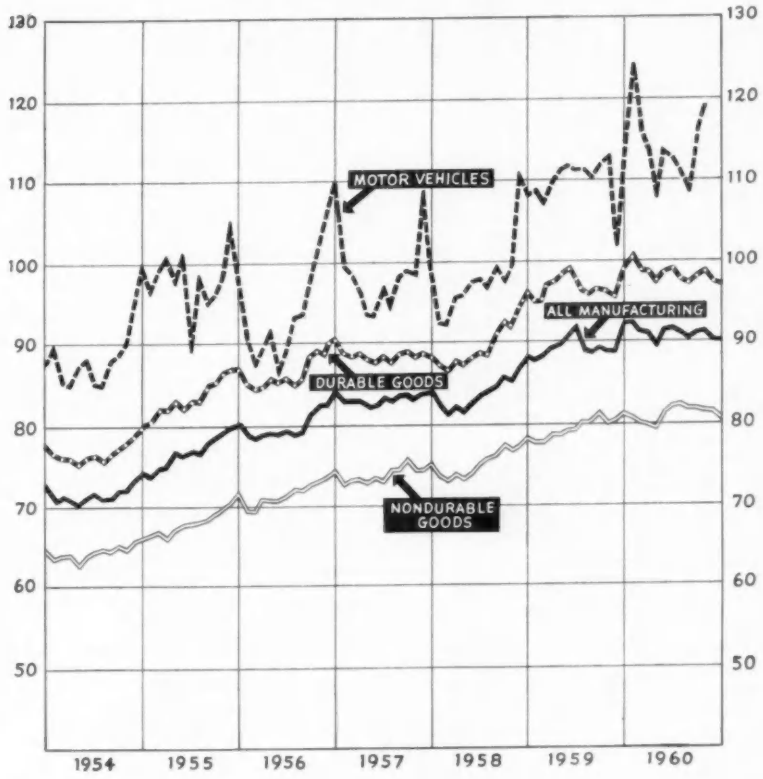
Monthly Averages

Year				
1960	$2.80	$114.53	$90.68	40.8
1959	2.70	110.10	88.10	40.7
1958	2.55	99.96	80.94	39.2
1957	2.46	98.40	81.86	40.0
1956	2.35	94.71	81.51	40.3
1955	2.29	97.78	85.40	42.7
1954	2.19	88.91	77.45	40.6
1953	2.14	87.95	76.88	41.1
1952	2.04	82.82	72.97	40.6
1951	1.91	75.45	67.97	39.5
1950	1.78	73.25	71.25	41.2

‡ Weekly earnings adjusted to Consumers' Price Index.

AVERAGE GROSS WEEKLY EARNINGS

In Dollars per Week



Hourly and Weekly Earnings, continued

Aircraft and Parts

Month	Average Earnings Hourly	Average Earnings Weekly	Real Weekly Earnings‡	Avg. Hours per Week
		1960		
Jan.	$2.67	$108.40	$86.44	40.6
Feb.	2.68	108.81	86.63	40.6
Mar.	2.68	109.34	86.98	40.8
Apr.	2.67	107.07	84.84	40.1
May	2.69	110.29	87.32	41.0
June	2.71	110.57	87.40	40.8
July	2.70	110.97	87.65	41.1
Aug.	2.71	110.84	87.55	40.9
Sept.	2.74	111.24	87.73	40.6
Oct.	2.73	111.93	87.93	41.0
Nov.	....	.....	.....	....
Dec.	....	.....	.....	....
Average	$2.70	$109.95	$87.05	40.7

Monthly Averages

Year				
1960	$2.70	$109.95	$87.05	40.7
1959	2.62	106.89	85.58	40.7
1958	2.51	101.91	82.52	40.6
1957	2.36	96.76	80.50	41.0
1956	2.26	95.99	82.61	42.1
1955	2.17	89.62	78.27	41.3
1954	2.06	85.07	74.10	40.9
1953	2.00	83.80	73.25	41.9
1952	1.90	81.70	71.98	43.0
1951	1.79	78.40	70.63	43.8
1950	1.64	68.39	66.53	41.6

‡ Weekly earnings adjusted to Consumers' Price Index.

Nondurable Goods

Month	Average Earnings Hourly	Average Earnings Weekly	Real Weekly Earnings‡	Avg. Hours per Week
		1960		
Jan.	$2.05	$80.77	$64.41	39.4
Feb.	2.05	79.95	63.65	39.0
Mar.	2.06	79.93	63.59	38.8
Apr.	2.06	79.52	63.01	38.6
May	2.07	81.35	64.41	39.3
June	2.08	82.16	64.95	39.5
July	2.08	82.37	65.06	39.6
Aug.	2.07	81.77	64.59	39.5
Sept.	2.09	81.72	64.45	39.1
Oct.	2.09	81.51	64.03	39.0
Nov.	2.10	81.48	63.96	38.8
Dec.	2.11	80.60	63.21	38.2
Average	$2.08	$81.09	$64.10	39.1

Monthly Averages

Year				
		1960		
1960	$2.08	$81.09	$64.10	39.1
1959	2.01	79.60	63.88	39.6
1958	1.94	75.27	60.95	38.8
1957	1.88	73.51	61.16	39.1
1956	1.80	71.10	61.19	39.5
1955	1.71	68.06	59.44	39.8
1954	1.66	64.74	56.39	39.0
1953	1.61	63.60	55.59	39.5
1952	1.54	60.98	53.73	39.6
1951	1.48	58.46	52.67	39.5
1950	1.38	54.71	53.22	39.7

COST OF LIVING

Consumer Price Index

All Items

	1960	1959	1958	1957
Jan.	125.4	123.8	122.3	118.2
Feb.	125.6	123.7	122.5	118.7
Mar.	125.7	123.7	123.3	118.9
Apr.	126.2	123.9	123.5	119.3
May	126.3	124.0	123.6	119.6
June	126.5	124.5	123.7	120.2
July	126.6	124.9	123.9	120.8
Aug.	126.6	124.8	123.7	121.0
Sept.	126.8	125.2	123.7	121.1
Oct.	127.3	125.5	123.7	121.1
Nov.	127.4	125.6	123.9	121.6
Dec.	127.5	125.5	123.7	121.6
Average	126.5	124.6	123.5	120.2

Apparel

	1960	1959	1958	1957
Jan.	107.9	106.7	106.9	106.4
Feb.	108.4	106.7	106.8	106.1
Mar.	108.8	107.0	106.8	106.8
Apr.	108.9	107.0	106.7	106.5
May	108.9	107.3	106.7	106.5
June	108.9	107.3	106.7	106.6
July	109.1	107.5	106.7	106.5
Aug.	109.3	108.0	106.6	106.6
Sept.	110.6	109.0	107.1	107.3
Oct.	111.0	109.4	107.3	107.7
Nov.	110.7	109.4	107.7	107.9
Dec.	110.6	109.2	107.5	107.6
Average	109.4	107.9	106.9	106.9

Food

	1960	1959	1958	1957
Jan.	117.6	119.0	118.2	112.8
Feb.	117.4	118.2	118.7	113.6
Mar.	117.7	117.7	120.8	113.2
Apr.	119.5	117.6	121.6	113.8
May	119.7	117.7	121.6	114.6
June	120.3	118.9	121.6	116.2
July	120.6	119.4	121.7	117.4
Aug.	120.1	118.3	120.7	117.9
Sept.	120.2	118.7	120.3	117.0
Oct.	120.9	118.4	119.7	116.4
Nov.	121.1	117.9	119.4	116.0
Dec.	121.4	117.8	118.7	116.1
Average	119.7	118.3	120.2	115.4

Rent

	1960	1959	1958	1957
Jan.	140.9	138.8	136.8	134.2
Feb.	141.0	139.0	137.0	134.2
Mar.	141.2	139.1	137.1	134.4
Apr.	141.4	139.3	137.3	134.5
May	141.4	139.3	137.5	134.7
June	141.6	139.5	137.7	135.0
July	141.8	139.6	137.8	135.2
Aug.	141.9	139.8	138.1	135.4
Sept.	142.1	140.0	138.2	135.7
Oct.	142.5	140.4	138.3	136.0
Nov.	142.7	140.5	138.4	136.3
Dec.	142.8	140.8	138.7	136.7
Average	141.8	139.7	137.7	135.2

Medical Care

	1960	1959	1958	1957
Jan.	153.5	148.0	141.7	135.3
Feb.	154.7	149.0	141.9	135.5
Mar.	155.0	149.2	142.3	136.4
Apr.	155.5	149.6	142.7	136.9
May	155.9	150.2	143.7	137.3
June	156.1	150.6	143.9	137.9
July	156.4	151.0	144.6	138.4
Aug.	156.7	151.4	145.0	138.6
Sept.	156.9	152.2	146.1	139.0
Oct.	157.3	152.5	146.7	139.7
Nov.	157.9	153.0	147.0	140.3
Dec.	158.0	153.2	147.3	140.8
Average	156.2	150.8	144.4	138.0

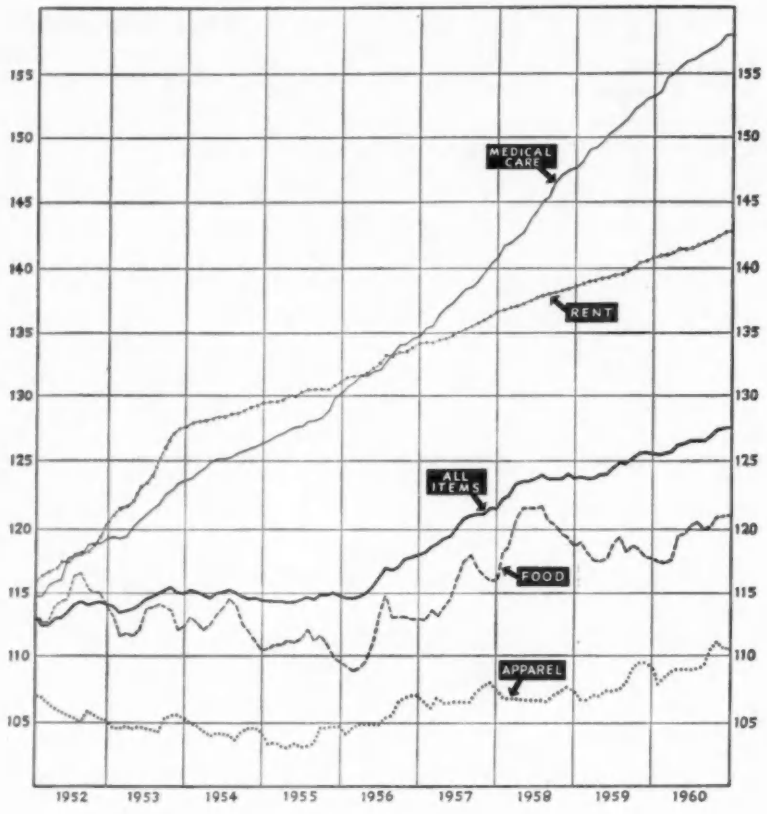
Transportation

	1960	1959	1958	1957
Jan.	147.6	144.1	138.7	133.6
Feb.	147.5	144.3	138.5	134.4
Mar.	146.5	144.9	138.7	135.1
Apr.	146.1	145.3	138.3	135.5
May	145.6	145.4	138.7	135.3
June	145.8	145.9	138.9	135.3
July	145.9	146.3	140.3	135.8
Aug.	146.2	146.7	141.0	135.9
Sept.	144.7	146.4	141.3	135.9
Oct.	146.1	148.5	142.7	135.8
Nov.	146.5	149.0	144.5	140.0
Dec.	146.5	148.7	144.3	138.9
Average	146.2	146.3	140.5	136.0

CONSUMER PRICE INDEX OF SELECTED ITEMS

As reported by the Bureau of Labor Statistics

Based on Monthly Average of 1947-1949 = 100



Wholesale Price Index of Selected Commodities

Bureau of Labor Statistics: Index 1947-1949 = 100

1960	All Commodities	Farm Products	Processed Foods	Textile Products	Machinery and Motive Products	Motor Vehicles	Farm Machinery and Equipment	Const. Machinery and Equipment
January	119.3	86.5	105.6	96.6	153.8	141.6	144.3	173.6
February	119.3	87.0	105.7	96.5	153.9	141.6	145.3	173.9
March	120.0	90.4	107.3	96.3	153.9	141.6	145.3	174.3
April	120.0	91.1	106.8	96.3	154.0	141.6	145.6	174.7
May	119.7	90.4	107.3	96.3	153.5	141.6	145.7	175.3
June	119.5	89.0	107.6	96.3	153.4	141.6	145.9	175.3
July	119.7	88.9	108.9	96.3	153.2	141.6	146.0	175.5
August	119.2	86.6	107.8	96.1	153.2	141.6	146.1	176.7
September	119.2	87.7	108.1	95.9	151.3	135.4	146.2	176.7
October	119.6	89.5	109.0	95.8	152.8	140.3	146.7	176.7
November	119.6	89.9	109.1	95.4	153.5	142.0	148.4	177.3
December	119.5	88.7	109.3	95.2	153.6	142.2	148.4	177.1
Average	119.6	88.0	107.7	96.1	153.3	141.1	146.1	175.6
MONTHLY AVERAGES								
1960	119.6	88.0	107.7	96.1	153.3	141.1	146.1	175.6
1959	119.4	89.0	107.0	95.0	153.0	142.8	143.3	171.9
1958	119.2	94.9	110.9	93.5	149.8	139.7	139.0	166.3
1957	117.6	90.9	105.6	95.4	146.1	135.4	133.6	160.0
1956	114.3	88.4	101.7	95.3	137.8	129.8	127.6	148.6
1955	110.7	89.6	101.7	95.3	128.4	122.9	123.2	137.1
1954	110.3	96.6	105.3	95.2	124.6	119.3	122.2	131.6
1953	110.1	97.0	104.6	97.3	123.0	118.9	122.3	129.3
1952	111.6	107.0	108.8	99.8	121.5	119.6	121.6	125.4
1951	114.8	113.4	111.4	110.6	119.0	112.9	120.1	123.6

INDUSTRIAL PRODUCTION

INDEXES OF INDUSTRIAL PRODUCTION

Adjusted for Seasonal Variation

Based on New Index of Federal Reserve Board, 1957 = 100

Total Industrial Production

	1960	1959	1958	1957	1956
Jan.	111	100	92	101	99
Feb.	110	102	89	102	99
Mar.	109	104	88	102	98
Apr.	109	107	87	101	100
May	110	109	89	101	99
June	109	110	92	102	99
July	110	108	93	101	95
Aug.	108	103	95	102	99
Sept.	107	103	95	100	101
Oct.	106	102	96	98	101
Nov.	105	103	99	96	101
Dec.	103	109	100	94	102
Average	108	105	93	100	99

Manufacturing

	1960	1959	1958	1957	1956
Jan.	112	100	91	102	100
Feb.	110	102	89	102	99
Mar.	110	104	87	102	99
Apr.	109	107	87	101	100
May	110	110	88	101	99
June	110	110	91	102	99
July	110	108	93	102	94
Aug.	108	104	95	102	99
Sept.	107	104	95	100	101
Oct.	106	102	96	98	101
Nov.	104	102	99	96	101
Dec.	103	109	99	94	102
Average	108	105	92	100	100

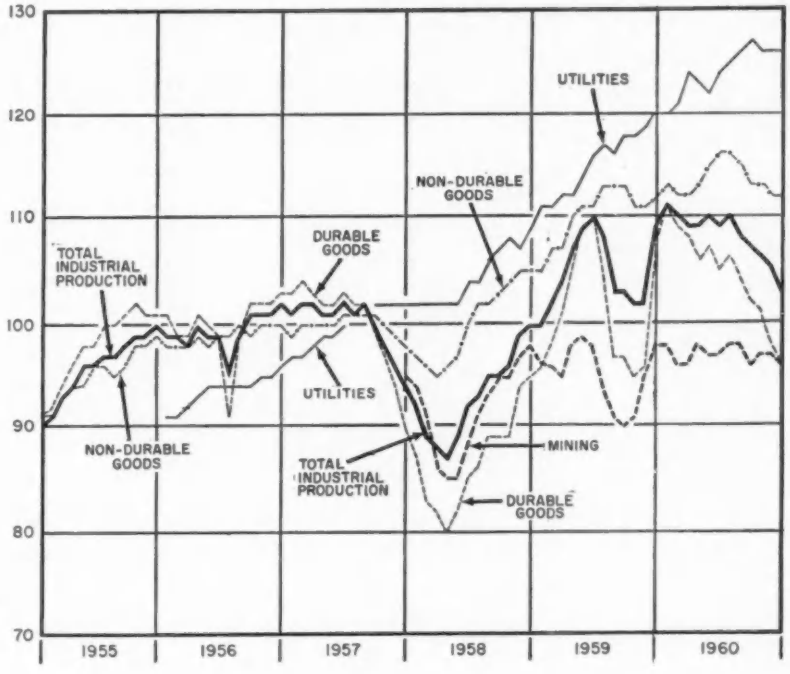
Durable Manufactures

	1960	1959	1958	1957	1956
Jan.	111	96	87	103	101
Feb.	109	98	83	104	99
Mar.	108	101	82	103	99
Apr.	106	105	80	102	101
May	107	109	82	102	100
June	105	110	85	103	99
July	106	105	86	102	91
Aug.	104	98	89	102	99
Sept.	102	97	89	100	102
Oct.	101	95	89	97	102
Nov.	98	96	94	94	102
Dec.	96	107	95	90	103
Average	104	101	87	100	100

Nondurable Manufactures

	1960	1959	1958	1957	1956
Jan.	113	105	97	99	98
Feb.	112	107	96	100	98
Mar.	112	107	95	100	98
Apr.	113	110	96	100	99
May	115	111	97	100	98
June	116	111	100	101	99
July	116	113	102	101	99
Aug.	115	113	102	101	100
Sept.	113	113	103	101	99
Oct.	113	111	104	100	100
Nov.	112	111	105	99	100
Dec.	112	112	105	98	100
Average	113	110	100	100	99

1960 INDUSTRIAL PRODUCTION UP 3% OVER 1959



Utilities

	1960	1959	1958	1957	1956
Jan.	120	111	102	97	91
Feb.	121	111	102	97	91
Mar.	124	112	102	98	92
Apr.	123	112	102	99	93
May	122	114	102	99	94
June	124	116	104	100	94
July	125	117	104	102	94
Aug.	126	116	106	102	94
Sept.	127	118	107	102	94
Oct.	126	118	108	102	95
Nov.	126	118	107	102	95
Dec.	126	120	109	102	96
Average	124	115	104	100	94

Mining

	1960	1959	1958	1957	1956
Jan.	98	97	94	101	99
Feb.	96	96	91	102	99
Mar.	96	95	86	103	99
Apr.	98	98	85	102	100
May	97	99	85	102	100
June	97	98	88	101	101
July	98	94	91	100	97
Aug.	98	91	93	99	101
Sept.	96	90	95	99	101
Oct.	97	91	95	98	101
Nov.	97	95	97	96	101
Dec.	96	98	98	95	101
Average	97	95	91	100	100

Manufacturers' Sales, Inventories, Net New Orders

All data are in Millions of Dollars

Based on data from the Office of Business Economics, U. S. Department of Commerce

	SALES			INVENTORIES, DEC. 31			NET NEW ORDERS		
Year	All Manufacturers	Durable Goods	Nondurable Goods	All Manufacturers	Durable Goods	Nondurable Goods	All Manufacturing	Durable Goods	Nondurable Goods
1960	$365,100	$176,270	$188,830	$54,120	$30,970	$23,150	$359,270	$171,280	$187,980
1959	357,124	174,286	182,838	52,316	30,260	22,610	362,540	179,231	183,309
1958	314,957	148,830	166,127	49,179	27,815	21,364	312,176	145,706	166,470
1957	341,212	170,278	170,934	53,520	31,148	22,372	327,758	157,589	170,169
1956	332,148	165,194	166,954	52,395	30,660	21,635	341,530	174,911	166,619
1955	316,116	156,987	159,129	46,364	26,664	19,700	326,221	166,411	159,810
1954	282,250	134,773	147,477	42,985	24,084	18,901	269,839	121,942	147,897
1953	294,094	148,597	145,497	45,431	26,244	19,187	277,009	132,289	144,720

MACHINE TOOLS

Units and Value of Metal Cutting Machine Tool Shipments

As reported by the National Machine Tool Builders' Association

Year	Shipments Units	Shipments Value	Avg. Cost per Tool	Year	Shipments Units	Shipments Value	Avg. Cost per Tool	Year	Shipments Units	Shipments Value	Avg. Cost per Tool
1919	99,000	$161,000,000	$1,600	1933	6,000	$25,000,000	$4,000	1947	60,000	$306,000,000	$5,100
1920	79,000	151,500,000	1,918	1934	13,500	50,000,000	3,704	1948	50,000	288,450,000	5,769
1921	21,000	36,000,000	1,714	1935	23,000	85,000,000	3,696	1949	34,500	249,150,000	7,222
1922	28,500	43,300,000	1,519	1936	40,000	133,000,000	3,325	1950	41,500	305,550,000	7,363
1923	36,000	79,300,000	2,203	1937	55,000	195,000,000	3,545	1951	70,800	632,250,000	8,930
1924	25,000	69,600,000	2,784	1938	34,000	145,000,000	4,265	1952	96,800	1,125,900,000	11,630
1925	31,000	86,700,000	2,797	1939	51,500	200,000,000	3,883	1953	91,500	1,191,200,000	13,019
1926	36,500	105,000,000	2,877	1940	110,000	440,000,000	4,000	1954	58,500	891,750,000	15,251
1927	28,000	87,000,000	3,107	1941	185,000	775,000,000	4,189	1955	50,500	670,400,000	13,275
1928	36,000	128,000,000	3,556	1942	307,000	1,320,000,000	4,300	1956	63,900	886,150,000	13,868
1929	50,000	185,000,000	3,700	1943	266,000	1,180,000,000	4,436	1957	53,700	843,900,000	15,726
1930	23,500	96,000,000	4,085	1944	136,000	497,000,000	3,654	1958	27,400	411,000,000	15,010
1931	12,000	51,000,000	4,200	1945	103,000	423,700,000	4,114	1959	33,900	413,050,000	12,175
1932	5,500	22,000,000	4,150	1946	75,000	334,800,000	4,464	1960	34,000	507,550,000	14,912

Machine Tools—Metal Cutting Type Only

Value of Net New Orders and Shipments

As reported by the National Machine Tool Builders Association

1960	NET NEW ORDERS Total	NET NEW ORDERS Domestic	NET NEW ORDERS Foreign	Backlog (In Months)	SHIPMENTS Total	SHIPMENTS Domestic	SHIPMENTS Foreign
January	$43,450,000	$34,050,000	$9,400,000	5.0	$36,750,000	$31,850,000	$4,900,000
February	47,700,000	35,400,000	12,300,000	4.5	40,000,000	34,350,000	5,650,000
March	48,450,000	36,550,000	11,900,000	4.8	51,050,000	44,100,000	6,950,000
April	36,700,000	28,900,000	7,800,000	4.5	43,950,000	36,300,000	7,650,000
May	37,950,000	26,050,000	11,900,000	4.3	44,300,000	35,400,000	8,900,000
June	42,600,000	25,450,000	17,150,000	4.0	48,400,000	38,000,000	10,400,000
July	33,500,000	22,650,000	10,850,000	3.9	39,450,000	31,400,000	8,050,000
August	47,800,000	36,300,000	11,500,000	4.1	36,500,000	29,000,000	7,500,000
September	42,150,000	25,800,000	16,350,000	4.3	41,000,000	29,900,000	11,100,000
October	35,600,000	25,550,000	10,050,000	4.3	40,650,000	27,750,000	12,900,000
November	39,750,000	26,050,000	13,700,000	4.4	36,900,000	23,400,000	13,500,000
December	47,450,000	29,450,000	18,000,000	4.4	48,600,000	33,000,000	15,600,000
Total—1960	$503,100,000	$352,200,000	$150,900,000	.....	$507,550,000	$394,450,000	$113,100,000
Total—1959	$509,000,000	$442,300,000	$66,700,000	.....	$413,050,000	$365,500,000	$47,550,000
Total—1958	$281,400,000	$232,900,000	$48,500,000	.....	$411,000,000	$357,300,000	$53,700,000
Total—1957	$519,750,000	$462,150,000	$57,600,000	.....	$843,900,000	$753,350,000	$90,550,000

Machine Tools—Metal Forming Type Only

Value of Net New Orders and Shipments

As reported by the National Machine Tool Builders Association

1960	NET NEW ORDERS Total	NET NEW ORDERS Domestic	NET NEW ORDERS Foreign	Backlog (In Months)	SHIPMENTS Total	SHIPMENTS Domestic	SHIPMENTS Foreign
January	$13,000,000	$11,000,000	$2,000,000	4.4	$9,650,000	$8,800,000	$850,000
February	12,900,000	11,100,000	1,800,000	4.4	11,950,000	10,300,000	1,650,000
March	13,500,000	11,050,000	2,450,000	4.3	13,450,000	10,850,000	2,600,000
April	15,150,000	11,400,000	3,750,000	4.5	11,150,000	8,750,000	2,400,000
May	12,000,000	6,350,000	5,650,000	4.4	12,050,000	9,350,000	2,700,000
June	12,500,000	10,300,000	2,200,000	4.1	14,700,000	13,000,000	1,700,000
July	9,450,000	5,700,000	3,750,000	3.9	11,850,000	10,000,000	1,850,000
August	9,050,000	6,200,000	2,850,000	3.8	11,400,000	8,700,000	2,700,000
September	10,150,000	6,050,000	4,100,000	3.8	12,950,000	10,350,000	2,600,000
October	20,600,000	17,100,000	3,500,000	4.5	10,700,000	7,650,000	3,050,000
November	10,200,000	8,400,000	1,800,000	4.4	11,650,000	8,900,000	2,750,000
December	11,550,000	6,150,000	5,400,000	4.3	12,750,000	7,950,000	4,800,000
Total—1960	$150,050,000	$110,800,000	$39,250,000	.....	$144,250,000	$114,600,000	$29,650,000
Total—1959	$149,950,000	$125,900,000	$24,050,000	.....	$125,100,000	$106,250,000	$18,850,000
Total—1958	$92,900,000	$75,050,000	$17,850,000	.....	$108,900,000	$90,200,000	$18,700,000
Total—1957	$123,150,000	$111,550,000	$11,600,000	.....	$244,550,000	$219,550,000	$25,000,000

Machine Tools—Metal Cutting and Forming Combined

Value of Net New Orders and Shipments

As reported by the National Machine Tool Builders Association

Month	NET NEW ORDERS Total	NET NEW ORDERS Domestic	NET NEW ORDERS Foreign	Backlog (In Months)	SHIPMENTS Total	SHIPMENTS Domestic	SHIPMENTS Foreign
January	$56,450,000	$45,050,000	$11,400,000	.....	$46,400,000	$40,650,000	$5,750,000
February	60,600,000	46,500,000	14,100,000	.....	51,950,000	44,650,000	7,300,000
March	61,950,000	47,600,000	14,350,000	.....	64,500,000	54,950,000	9,550,000
April	51,850,000	40,300,000	11,550,000	.....	55,100,000	45,050,000	10,050,000
May	49,950,000	32,400,000	17,550,000	.....	56,350,000	44,750,000	11,600,000
June	55,100,000	35,750,000	19,350,000	.....	63,100,000	51,000,000	12,100,000
July	42,950,000	28,350,000	14,600,000	.....	51,300,000	41,400,000	9,900,000
August	56,850,000	42,500,000	14,350,000	.....	47,900,000	37,700,000	10,200,000
September	52,300,000	31,850,000	20,450,000	.....	53,950,000	40,250,000	13,700,000
October	56,200,000	42,650,000	13,550,000	.....	51,350,000	35,400,000	15,950,000
November	49,950,000	34,450,000	15,500,000	.....	48,550,000	32,300,000	16,250,000
December	59,000,000	35,600,000	23,400,000	.....	61,350,000	40,950,000	20,400,000
Total—1960	$653,150,000	$463,000,000	$190,150,000	.....	$651,800,000	$509,050,000	$142,750,000
Total—1959	$658,950,000	$568,200,000	$90,750,000	.....	$538,150,000	$471,750,000	$66,400,000
Total—1958	$374,300,000	$307,950,000	$66,350,000	.....	$519,900,000	$447,500,000	$72,400,000
Total—1957	$642,900,000	$573,700,000	$69,200,000	.....	$1,088,450,000	$972,900,000	$115,550,000

TIRES AND TUBES

Shipments, Production, and Inventory of Car, Truck and Bus Tires

As reported by the Rubber Manufacturers Association

Year	Shipments: Original Equipment	Shipments: Replacement	Shipments: Export	Shipments: Total	Production	Year End Inventory
PASSENGER CAR TIRES						
1960	36,319,741	68,534,890	944,360	**105,799,261**	105,361,431	23,583,253
1959	29,770,496	66,840,236	788,712	**97,399,441**	102,695,694	23,599,172
1958	23,408,073	61,570,108	717,342	**85,695,525**	83,636,178	17,817,687
1957	32,723,955	56,605,037	888,457	**90,217,449**	93,547,244	19,817,850
1956	30,873,852	53,216,773	874,751	**84,965,376**	85,522,637	16,493,813
1955	42,574,053	50,189,250	966,406	**93,729,709**	97,223,165	15,963,038
1954	29,741,478	47,043,543	927,646	**77,712,667**	76,794,128	12,217,280
1953	33,098,490	45,874,056	806,199	**79,778,745**	81,430,817	13,043,064
TRUCK AND BUS TIRES						
1960	3,885,260	9,250,107	777,100	**13,912,467**	14,482,361	3,956,841
1959	4,417,185	10,014,591	643,991	**15,075,767**	15,238,150	3,355,382
1958	3,375,039	9,226,435	630,903	**13,232,377**	12,926,695	3,170,719
1957	4,040,732	8,545,168	845,182	**13,431,082**	13,393,818	3,407,557
1956	4,547,875	8,894,228	882,532	**14,324,635**	14,859,457	3,377,991
1955	4,800,314	9,056,789	912,223	**14,769,326**	14,955,092	2,815,258
1954	3,591,223	8,111,034	825,601	**12,527,858**	12,346,811	2,544,705
1953	4,837,634	9,317,012	733,954	**14,888,600**	14,690,498	2,662,741
TOTAL AUTOMOTIVE TIRES						
1960	40,205,001	77,784,997	1,721,730	**119,711,728**	119,843,792	27,540,094
1959	34,187,681	76,854,827	1,432,703	**112,475,211**	117,933,844	26,954,554
1958	26,783,112	70,796,543	1,348,245	**98,927,900**	96,562,873	20,988,406
1957	36,764,687	65,150,205	1,733,639	**103,648,531**	106,941,062	23,225,407
1956	35,421,727	62,111,001	1,757,283	**99,290,011**	100,382,094	19,871,804
1955	47,374,367	59,246,039	1,878,629	**108,499,035**	112,178,257	18,778,296
1954	33,332,701	55,154,577	1,753,247	**90,240,525**	89,140,939	14,761,985
1953	37,936,124	55,191,068	1,540,153	**94,667,345**	96,121,315	15,705,805

Shipments of Inner Tubes

As reported by the Rubber Manufacturers Association

Year	Original Equipment	Replacement	Export	Total
1960	3,349,002	36,323,967	1,120,469	**40,793,438**
1959	3,623,669	41,522,270	890,569	**46,036,508**
1958	2,678,228	37,871,892	869,543	**41,419,663**
1957	3,045,145	35,683,734	1,077,224	**39,806,102**
1956	3,099,639	32,358,420	1,039,627	**36,497,686**
1955	5,001,498	33,387,008	1,000,512	**39,389,018**
1954	25,070,964	35,576,496	945,275	**61,592,735**
1953	37,956,879	36,071,886	878,126	**74,906,891**
1952	29,450,554	32,984,785	1,013,610	**63,448,949**
1951	32,151,424	32,283,823	1,071,253	**65,506,500**
1950	41,240,397	42,671,151	811,335	**84,722,883**

Shipments of Tractor-Implement Tires

As reported by the Rubber Manufacturers Association

Year	Original Equipment	Replacement	Export	Total
1960	1,227,874	2,036,768	138,873	**3,403,515**
1959	1,856,037	1,931,229	91,798	**3,879,064**
1958	1,709,106	1,815,706	109,984	**3,634,796**
1957	1,646,919	1,546,372	94,767	**3,288,058**
1956	1,559,386	1,442,053	106,831	**3,108,270**
1955	2,188,546	1,439,321	94,147	**3,722,014**
1954	1,758,067	1,305,753	86,012	**3,149,832**
1953	2,394,442	1,369,285	67,402	**3,831,129**

U.S. Rubber Consumption by Tire and Tube and Other Industries

All data are in Long Tons

As reported by the Chemical and Rubber Division, Business and Defense Services Administration

Year	Consumption in Long Tons: Natural	Synthetic	Reclaimed	Total	% of Total Rubber Consumption: Natural	Synthetic	Reclaimed	Total
TOTAL RUBBER CONSUMPTION								
1960	479,598	1,074,770	278,765	1,833,133	100.00	100.00	100.00	100.00
1959	555,044	1,072,726	290,410	1,917,180	100.00	100.00	100.00	100.00
1958	484,492	879,912	248,156	1,612,560	100.00	100.00	100.00	100.00
1957	538,761	925,879	266,852	1,731,492	100.00	100.00	100.00	100.00
1956	562,088	874,394	270,547	1,707,029	100.00	100.00	100.00	100.00
1955	634,800	894,899	312,781	1,842,480	100.00	100.00	100.00	100.00
1954	596,285	636,727	249,049	1,482,061	100.00	100.00	100.00	100.00
CONSUMPTION BY TIRE AND TIRE PRODUCTS INDUSTRY								
1960	323,608	671,214	149,798	1,144,620	67.48	62.45	53.74	62.44
1959	354,663	669,611	152,048	1,176,322	63.90	62.42	50.66	61.36
1958	302,047	558,869	134,944	995,860	62.34	63.51	54.38	61.76
1957	342,727	583,440	141,480	1,067,647	63.61	63.01	53.02	61.66
1956	363,970	533,047	142,968	1,039,985	64.75	60.96	52.84	60.92
1955	409,574	550,282	167,680	1,127,536	64.52	61.49	53.61	61.20
1954	386,284	391,035	125,812	903,131	64.78	61.41	50.52	60.94
CONSUMPTION BY NON-TIRE PRODUCTS INCLUDING WIRE AND CABLE								
1960	155,990	403,556	128,967	688,513	32.52	37.55	46.26	37.56
1959	200,381	403,115	138,362	741,858	36.10	37.58	49.34	38.50
1958	182,445	321,043	113,212	616,700	37.66	36.49	45.62	38.24
1957	196,034	342,439	125,372	663,845	36.39	36.99	46.98	38.34
1956	198,118	341,347	127,579	667,044	35.25	39.04	47.16	39.08
1955	225,226	344,617	145,101	714,944	35.48	38.51	46.39	38.80
1954	210,001	245,692	123,237	578,930	35.22	38.59	49.48	39.06

STEEL

Shipments of Steel Products by Market Classifications

All Grades including Carbon, Alloy and Stainless

As reported by the American Iron and Steel Institute.

Consuming Industries	1960 Net Tons	1960 % of Total	1959 Net Tons	1959 % of Total	1958 Net Tons	1958 % of Total	1957 Net Tons	1957 % of Total
Automotive								
Vehicles and Parts (assemblers)	9,678,773	13.60	9,061,023	13.06	6,480,385	10.81	9,229,202	11.55
Parts, Accessories and Supplies	4,515,346	6.35	4,731,372	6.82	3,369,755	5.62	4,666,113	5.84
Forgings	416,305	.58	421,490	.61	274,894	.46	331,781	.42
Tractors	495,582	.70	658,303	.95	460,032	.77	582,858	.73
Aircraft	77,488	.11	71,343	.10	62,209	.10	99,561	.12
Total—Automotive and Aircraft	15,183,494	21.34	14,943,521	21.54	10,647,275	17.76	14,909,515	18.66
Warehouses and Distributers	12,479,830	17.54	13,048,754	18.81	10,902,283	18.20	14,507,308	18.16
Construction, including Maintenance	9,663,487	13.58	8,514,178	12.27	8,722,549	14.56	12,523,285	15.67
Containers	6,428,966	9.04	6,318,229	9.11	6,568,583	10.96	6,237,583	7.81
Machinery, Ind. Equip. & Tools (less Tractors)	3,462,353	4.88	3,500,025	5.04	2,721,164	4.54	3,929,440	4.92
Contractors' Products	3,602,044	5.06	3,573,196	5.15	3,467,189	5.79	3,403,580	4.26
Steel for Converting and Processing	2,928,226	4.12	3,133,407	4.52	2,854,574	4.76	3,396,529	4.25
Rail Transportation	2,525,267	3.55	2,356,840	3.40	1,472,112	2.46	4,149,074	5.19
Electrical Machinery and Equipment	2,078,305	2.92	2,051,577	2.96	1,771,514	2.96	2,085,675	2.61
Appliances, Utensils, and Cutlery	1,759,665	2.47	1,829,202	2.64	1,590,095	2.65	1,558,569	1.95
Other Domestic and Commercial Equipment	1,958,695	2.75	1,832,766	2.65	1,715,542	2.86	1,837,940	2.30
Export	2,562,818	3.60	1,408,477	2.03	2,429,149	4.05	4,568,795	5.72
Agricultural	1,003,485	1.41	1,264,988	1.83	1,193,114	1.99	1,098,102	1.37
Bolts, Nuts, Rivets, and Screws	1,071,723	1.51	1,071,142	1.55	878,873	1.47	1,149,545	1.44
Forgings (Other than Automotive)	841,223	1.18	956,893	1.38	767,217	1.28	1,056,036	1.32
Shipbuilding and Marine Equipment	622,190	.87	641,887	.93	797,511	1.33	1,277,772	1.60
Oil and Gas Drilling	404,224	.57	540,538	.78	305,923	.51	700,501	.88
Mining, Quarrying, and Lumbering	288,062	.40	234,945	.34	179,505	.30	328,803	.41
Ordnance and Other Military	164,783	.23	127,434	.18	238,690	.40	356,406	.45
Non-Classified Shipments	2,120,378	2.98	2,029,068	2.89	691,571	1.17	820,119	1.03
Total—Shipments	71,149,218	100.00	69,377,067	100.00	59,914,433	100.00	79,894,577	100.00

Shipments of Carbon, Alloy, and Stainless Steel, by Markets, 1959-1960

All data are in Net Tons

As reported by the American Iron & Steel Institute

Consuming Industries	CARBON STEEL 1960	CARBON STEEL 1959	ALLOY STEEL 1960	ALLOY STEEL 1959	STAINLESS STEEL 1960	STAINLESS STEEL 1959
Automotive						
Vehicles and Parts (Assemblers)	8,981,323	8,289,719	667,197	735,100	30,253	36,204
Parts, Accessories, and Supplies	3,942,015	4,089,991	525,910	582,922	47,421	58,459
Forgings	264,214	235,534	151,602	185,692	489	254
Tractors	424,192	569,651	71,305	88,629	85	23
Aircraft, incl. Forgings	20,764	20,117	43,194	36,325	13,530	14,901
Total—Automotive and Aircraft	13,632,508	13,205,012	1,459,208	1,628,668	91,778	109,841
Steel for Converting and Processing	2,807,056	3,019,233	76,903	67,832	44,267	46,342
Forgings (Other than Automotive)	553,394	608,218	280,933	340,549	6,896	8,126
Bolts, Nuts, Rivets, and Screws	996,561	998,421	69,938	66,607	5,224	6,114
Warehouses and Distributors	11,742,724	12,273,704	508,563	522,599	228,543	252,451
Construction, including Maintenance	9,471,053	8,407,922	183,547	100,419	8,887	5,837
Contractors' Products	3,572,072	3,541,170	14,274	15,412	15,698	16,614
Rail Transportation	2,286,462	2,178,975	236,546	176,910	2,259	955
Shipbuilding and Marine Equipment	545,163	558,344	75,447	81,963	1,580	1,580
Oil and Gas Drilling	288,466	396,265	115,324	143,886	434	387
Mining, Quarrying, and Lumbering	262,968	214,024	24,881	20,694	213	227
Agricultural	980,274	1,238,169	22,989	26,517	222	302
Machinery, Industrial Equipment and Tools (less Tractors)	2,967,915	2,942,779	460,007	513,493	34,431	43,753
Electrical Machinery and Equipment	1,610,917	1,506,950	456,713	534,151	10,675	10,476
Appliances, Utensils, and Cutlery	1,707,924	1,770,831	13,682	14,260	38,059	44,111
Other Domestic and Commercial Equipment	1,928,786	1,804,761	18,847	14,802	11,062	13,203
Containers	6,404,131	6,300,516	23,726	15,945	1,109	1,768
Ordnance and Other Military	104,601	106,578	58,125	18,581	2,057	2,275
Export	2,378,414	1,277,217	143,123	113,594	41,281	17,666
Non-classified Shipments	1,947,861	1,823,016	138,665	173,496	33,852	32,566
Total	68,189,250	64,172,095	4,381,441	4,590,378	578,527	614,094

1960 Motor Vehicle Registrations in 115 Leading Counties

Data from R. L. Polk & Co. are as of July 1, 1960

STATE	COUNTY	PRINCIPAL CITY	PASSENGER CARS	TRUCKS
Alabama	Jefferson	Birmingham	197,855	29,498
	Mobile	Mobile	96,312	14,686
Arizona	Maricopa	Phoenix	229,011	53,770
	Pima	Tucson	97,929	18,238
California	Alameda	Oakland	346,890	48,744
	Contra Costa	Richmond	154,156	21,847
	Fresno	Fresno	135,749	37,986
	Kern	Bakersfield	106,864	30,456
	Los Angeles	Los Angeles	2,542,366	333,734
	Orange	Santa Ana	281,200	38,815
	Riverside	Riverside	115,087	25,714
	Sacramento	Sacramento	195,469	39,939
	San Bernardino	San Bernardino	187,152	36,925
	San Diego	San Diego	366,679	56,908
	San Francisco	San Francisco	248,795	52,035
	San Joaquin	Stockton	90,544	24,438
	San Mateo	San Mateo	174,591	21,835
	Santa Clara	San Jose	254,392	40,030
Colorado	Denver	Denver	260,159	36,950
Connecticut	Fairfield	Bridgeport	245,568	23,241
	Hartford	Hartford	227,705	25,767
	New Haven	New Haven	216,044	24,860
Delaware	New Castle	Wilmington	100,990	15,758
District of Columbia		Washington	250,254	22,411
Florida	Broward	Ft. Lauderdale	149,393	17,480
	Dade	Miami	373,822	41,043
	Duval	Jacksonville	151,317	22,399
	Hillsborough	Tampa	151,215	24,576
	Orange	Orlando	105,425	16,780
	Palm Beach	W. Palm Beach	93,034	13,774
	Pinellas	St. Petersburg	163,268	15,666
Georgia	Fulton	Atlanta	208,147	33,494
Hawaii		Honolulu	138,401	19,558
Illinois	Cook	Chicago	1,476,968	117,588
	Du Page	Elmhurst	121,100	8,798
	Lake	Waukegan	104,435	10,964
Indiana	Lake	Gary	165,406	20,660
	Marion	Indianapolis	251,832	40,124
	Saint Joseph	South Bend	86,188	12,053
Iowa	Polk	Des Moines	97,179	15,135
Kansas	Sedgwick	Wichita	133,719	21,210
Kentucky	Jefferson	Louisville	197,261	26,441
Louisiana	Orleans	New Orleans	162,411	21,673
Maryland		Baltimore City	363,267	39,460
Massachusetts	Bristol	Fall River	125,191	14,061
	Essex	Lynn	178,294	17,029
	Hampden	Springfield	133,309	14,507
	Middlesex	Cambridge	376,254	34,327
	Norfolk	Quincy	169,476	12,751
	Suffolk	Boston	173,145	24,144
	Worcester	Worcester	181,504	21,467
Michigan	Genesee	Flint	135,348	14,227
	Kent	Grand Rapids	131,689	17,601
	Macomb	East Detroit	149,178	13,558
	Oakland	Pontiac	237,607	20,646
	Wayne	Detroit	955,497	83,538
Minnesota	Hennepin	Minneapolis	325,854	34,372
	Ramsey	St. Paul	157,451	20,111
Missouri	Jackson	Kansas City	225,970	29,918
		St. Louis City	406,944	44,624
Nebraska	Douglas	Omaha	113,776	15,693
New Jersey	Bergen	Hackensack	291,398	23,377
	Camden	Camden	122,597	12,777
	Essex	Newark	294,705	34,364
	Hudson	Jersey City	152,207	17,354
	Mercer	Trenton	90,355	10,996
	Middlesex	New Brunswick	148,607	15,977
	Monmouth	Asbury Park	121,289	15,052
	Morris	Morristown	102,457	10,644
	Passaic	Paterson	137,428	15,136
	Union	Elizabeth	199,951	16,608
New York	5 Boroughs	New York	1,316,685	114,877
	Erie	Buffalo	328,346	32,446
	Monroe	Rochester	194,266	18,245
	Nassau	Hempstead	480,081	31,380
	Onondaga	Syracuse	137,166	15,267
	Suffolk	Kings Park	237,590	23,851
	Westchester	Yonkers	299,489	22,090
North Carolina	Mecklenburg	Charlotte	91,133	16,465
Ohio	Cuyahoga	Cleveland	584,447	43,270
	Franklin	Columbus	234,330	28,761
	Hamilton	Cincinnati	272,263	27,373
	Lucas	Toledo	158,420	14,908
	Mahoning	Youngstown	98,628	10,235
	Montgomery	Dayton	187,795	17,720
	Stark	Canton	124,187	14,629
	Summit	Akron	182,386	17,974
Oklahoma	Oklahoma	Oklahoma City	172,177	34,272
	Tulsa	Tulsa	137,147	26,113
Oregon	Multnomah	Portland	216,978	33,530
Pennsylvania	Allegheny	Pittsburgh	474,981	48,426
	Berks	Reading	92,481	13,394
	Bucks	Levittown	110,766	10,307
	Delaware	Chester	179,285	11,154
	Lancaster	Lancaster	95,537	16,027
	Luzerne	Wilkes Barre	108,477	14,374
	Montgomery	Norristown	190,748	19,589
	Philadelphia	Philadelphia	473,269	51,058
	Westmoreland	New Kensington	106,652	13,964
	York	York	87,956	13,697
Rhode Island	Providence	Providence	176,886	22,906
Tennessee	Davidson	Nashville	124,195	17,087
	Shelby	Memphis	168,075	23,403
Texas	Bexar	San Antonio	198,156	33,536
	Dallas	Dallas	351,110	54,351
	Harris	Houston	431,243	71,629
	Tarrant	Fort Worth	198,001	33,738
Utah	Salt Lake	Salt Lake City	134,155	24,833
Virginia	Henrico	Richmond	118,040	20,155
	Norfolk	Norfolk	124,166	14,579
Washington	King	Seattle	338,160	51,557
	Pierce	Tacoma	107,555	17,962
	Spokane	Spokane	96,514	18,594
West Virginia	Kanawha	Charleston	81,675	16,292
Wisconsin	Milwaukee	Milwaukee	322,300	29,638
Total of 115 Counties			27,982,937	3,423,979
Total U. S. as of July 1, 1960			57,102,676	10,802,959
Per Cent in Leading Counties			49.00%	31.69%

DIRECTORY OF MANUFACTURERS

Following are the company names and addresses of manufacturers whose products are listed in the tables of specifications of complete motor vehicles, tractors, construction and off-highway equipment, all types of gasoline and Diesel engines, and gas turbine engines.

U. S. PASSENGER CARS

For details of their products see pages 110-128.

American Motors Corp., Detroit 32, Mich.
BUICK Motor Div., General Motors Corp., Flint 2, Mich.
CADILLAC Motor Car Div., General Motors Corp., Detroit 32, Mich.
CHECKER Motors Corp., Kalamazoo, Mich.
CHEVROLET Motor Div., General Motors Corp., Detroit 2, Mich.
CHRYSLER-Imperial Div., Chrysler Corp., Detroit 31, Mich.
COMET, see Ford Div.
CORVAIR, see Chevrolet Motor Div.
CORVETTE, see Chevrolet Motor Div.
DE SOTO, see Plymouth-De Soto-Valiant Div.
DODGE Div., Chrysler Corp., Detroit 31, Mich.
DODGE DART, see Dodge Div.
DODGE LANCER, see Dodge Div.
FALCON, see Ford Div.
FORD Div., Ford Motor Co., Dearborn, Mich.
IMPERIAL, see Chrysler-Imperial Div.
LINCOLN CONTINENTAL, see Lincoln-Mercury Div.
Lincoln-Mercury Div., Ford Motor Co., Dearborn, Mich.
MERCURY, see Lincoln-Mercury Div.
OLDSMOBILE Div., General Motors Corp., Lansing 21, Mich.
PLYMOUTH - De Soto - Valiant Div., Chrysler Corp., Detroit 31, Mich.
PONTIAC Motor Div., General Motors Corp., Pontiac 11, Mich.
RAMBLER, see American Motors Corp.
STUDEBAKER - Packard Corp., South Bend 27, Ind.
TEMPEST, see Pontiac Motor Div.
THUNDERBIRD, see Ford Div.
VALIANT, see Plymouth-De Soto-Valiant Div.

FOREIGN PASSENGER CARS

For details of their products see pages 129-132.

GREAT BRITAIN

A. C. Cars Ltd., Thames Ditton, Surrey, England.
A. F. N. Ltd., Isleworth, Middlesex, England.
ALVIS Ltd., Coventry, England.
ASTON MARTIN Lagonda Ltd., Feltham, Middlesex, England.
AUSTIN Motor Co., Ltd., Longbridge, Birmingham, England.
AUSTIN-HEALEY, see Austin Motor Co., Ltd.
BENTLEY, see Rolls-Royce, Ltd.
BERKELEY Cars Ltd., Biggleswade, Bedfordshire, England.
BERNARD Rodger Developments, Ltd., Horton, Slough, Bucs., England.
BRISTOL Cars, Ltd., Bristol, England.
DAIMLER Co., Ltd., Coventry, England.
FAIRTHORPE, Ltd., Chalfont St., Peter, Bucks, England.
FORD Motor Company, Ltd., Dagenham, England.
FRAZER-NASH, see A. F. N. Ltd.
HILLMAN, see Rootes Group.
HUMBER, see Rootes Group.
JAGUAR Cars, Ltd., Coventry, England.
JENSEN Motors Ltd., West Bromwich, England.
LOTUS Cars Ltd., Cheshunt, Hertfordshire, England.
METROPOLITAN, see Austin Motor Co., Ltd.
M.G., see Nuffield Exports Ltd.
MORGAN Motor Co., Ltd., Malvern Link, Worcestershire, England.
MORRIS, see Nuffield Exports, Ltd.
NOBLE, see York Noble Industries, Ltd.
Nuffield Exports Ltd., Cowley, Oxford, England.
PRINCESS, see Austin Motor Co., Ltd.
RILEY, see Nuffield Exports Ltd.
ROLLS-ROYCE, Ltd., Crewe, England.
Rootes Group, Coventry, England.
ROVER Company Ltd., Solihull, Warwickshire, England.
SINGER, see Rootes Group.
STANDARD-Triumph Engineering, Ltd., Coventry, England.
SUNBEAM, see Rootes Group.
TRIUMPH, see Standard-Triumph Engineering, Ltd.
VAUXHALL Motors Ltd., Luton, Bedfordshire, England.
WARWICK, see Bernard Rodger Developments, Ltd.
WOLSELEY, see Nuffield Exports Ltd.
YORK Noble Industries Ltd., London W. 1, England.

AUSTRALIA

General Motors-HOLDEN'S Ltd., Melbourne, Australia.

AUSTRIA

STEYR-PUCH, see Steyr-Daimler-Puch.
Steyr-Daimler-Puch, Steyr, Austria.

CZECHOSLOVAKIA

Motokov Ltd., Praha 7, Czechoslovakia.
SKODA, see Motokov.
TATRA, Koprivnice, Czechoslovakia.

FRANCE

Societe des Automobiles ALPINE, Paris 18, France.
S.A. des Anciens Etablissements PANHARD & Levassor, Paris 24, France.
S.A. des Automobiles PEUGEOT, Paris 8, France.
Regie Nationale des Usines RENAULT, Billancourt, Seine, France.
SIMCA, Paris 8, France.

GERMANY

AUTO UNION, G.M.B.H., Dusseldorf, Germany.
Bayerische Motoren Werke Aktiengesellshaft (BMW), Munchen 13, Germany.
Carl F. W. BORGWARD, G.M.B.H., Bremen, Germany.
DKW, see Auto Union.
Daimler-Benz A.G., Stuttgart-Unterturkheim, Germany.
Fahrzeug-Und Maschinenbau, G.M.B.H., Ragensburg, Germany.
FMR, see Fahrzeug-Und Maschinenbau.
FORD-Werke A.G., Koln-Niehl, Germany.
GOGGOMOBIL, see Hans Glas Isaria.
GOLIATH-Werke G.M.B.H., Bremen 11. Osterdeich 222, Germany.
Hans Glas Isaria-Vertriebs-KG, Dingolfing, Bayern, Western Germany.
LLOYD Motoren Werke G.M.B.H., Bremen, West Germany.
MERCEDES-BENZ, see Daimler - Benz A.G.
NSU Motorenwerke Aktiengesellschaft, Neckarsulm, Germany.
Adam OPEL, Aktiengesellschaft, Russelsheim Am Main, Germany.
Dr. Ing. h.c. F. PORSCHE K.G., Stuttgart-Zuffenhausen, Germany.
VOLKSWAGENWERK Aktiengesellschaft, Wolfsburg, Germany.

HOLLAND

DAF, see Van Doorne's Automobielfabriek N.V.
Van Doorne's Automobielfabriek N.V., Eindhoven, Holland.

IRELAND

HEINKEL, see International Sales, Ltd.
International Sales Ltd., Dublin, Eire.

ITALY

Autobianchi, Milano, Italy.
BIANCHINA, see Autobianchi.
FERRARI Automobili, Modena, Italy.
FIAT, Turino, Italy.
LANCIA & CO., Torino, Italy.
Fabbrica Automobili MORETTI, Sp.A., Torino, Italy.

JAPAN

DATSUN, see Nissan Motor Co., Ltd.
Nissan Motor Co., Ltd., Shinkoyasu, Yokohama, Japan.
TOYOTA Motor Co., Ltd., Toyota-Shi, Aichi-Ken, Japan.

RUSSIA

MOSKVITCH, see V/O Autoexport.
V/O Autoexport, Moscow, U.S.S.R.
VOLGA, see V/O Autoexport.

SPAIN

Sociedad Espanola De Automoviles De Turismo, S.A. (S.E.A.T.), Barcelona, Spain.

SWEDEN

SAAB, see Svenska Aeroplan Aktiebolaget.
Svenska Aeroplan Aktiebolaget, Trollhattan, Sweden.

SWITZERLAND

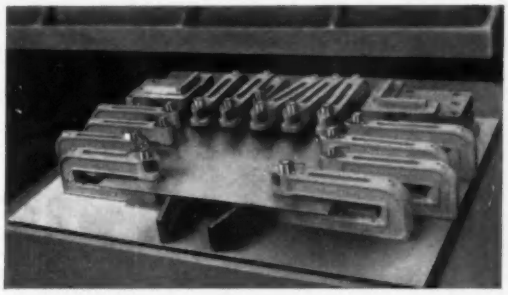
E. ENZMANN, Automobile, Schupfheim, Switzerland.

TRUCKS

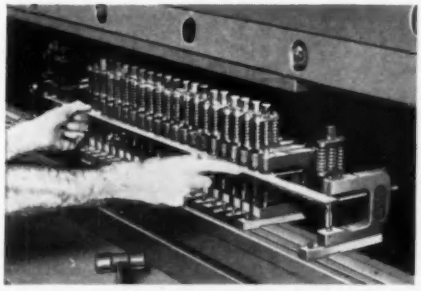
For details of their products see pages 133-139.

American-Coleman Co., Littleton, Colorado.
CHEVROLET Motor Div., General Motors Corp., Detroit 2, Mich.
CLEVELAND Electric Vehicle Co., Chardon, Ohio.
COLEMAN, see American-Coleman Co.
DIVCO Truck Div., Divco-Wayne Corp., Detroit 5, Mich.
DODGE Div., Chrysler Corp., Detroit 31, Mich.

(Turn to page 350, please)



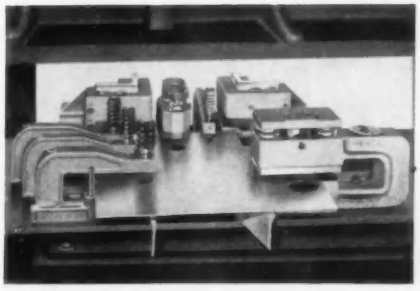
STRIPPIT eliminates expensive custom dies. Type "BN" Units used in press set-up save the time and cost involved in designing and building single-purpose dies. "BN" Units punch holes to 3.500″ diameter in 10 gauge material.



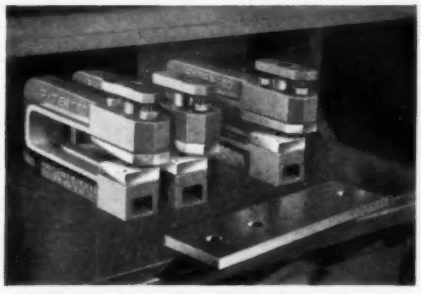
STRIPPIT lowers labor costs. Typical setup of Type "C" Units can be set up by any good bench man. No high-salaried tool and die makers needed. "C" Units punch holes to .3125″ diameter in ⅛″ material.

Cut costs with STRIPPIT Self-Contained Tooling

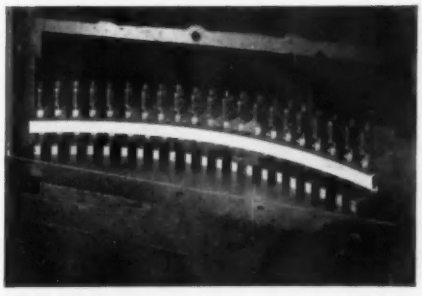
STRIPPIT gives you a complete line (including notching and slotting units) from a single source. Nationwide sales and service is available through trained tooling methods engineers. Specify STRIPPIT, the original system of self-contained tooling. Write now for the new STRIPPIT General Catalog.



STRIPPIT assures minimum investment. "CJ" Units punch a variety of hole sizes to 3.500″ diameter. Simply replace punches and dies! Re-using units reduces investment in idle dies, practically eliminates die storage problem.

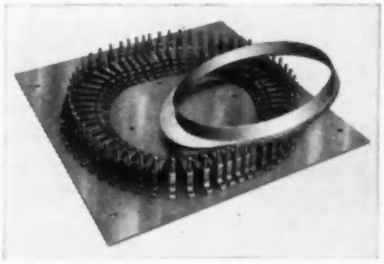


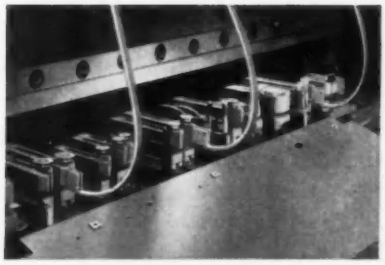
STRIPPIT shortens lead time . . . setup of Type "HS" Hydra-Strip Units shows ¾″ thick punched piece in foreground. STRIPPIT tooling like this can be set up *immediately* after the pattern is O.K.'d.



STRIPPIT sets up faster, more accurately. Type "E" Units for punching holes in channels and shapes are permanently aligned. Pilot pin is concentric with punch to assure fast, accurate positioning on precision-drilled template.

STRIPPIT cuts press downtime. Type "H" Unit setup is ready to move into press as soon as previous run is finished. Nothing attaches to the press ram. Type "H" Units punch holes up to .500″ diameter in ⅛″ material.





STRIPPIT provides unlimited versatility. Type "BL" Pierce Nut Units punch and stake Fabristeel Multipierce Nuts, can emboss simultaneously. STRIPPIT units can be set up in any hole pattern and used over and over again.

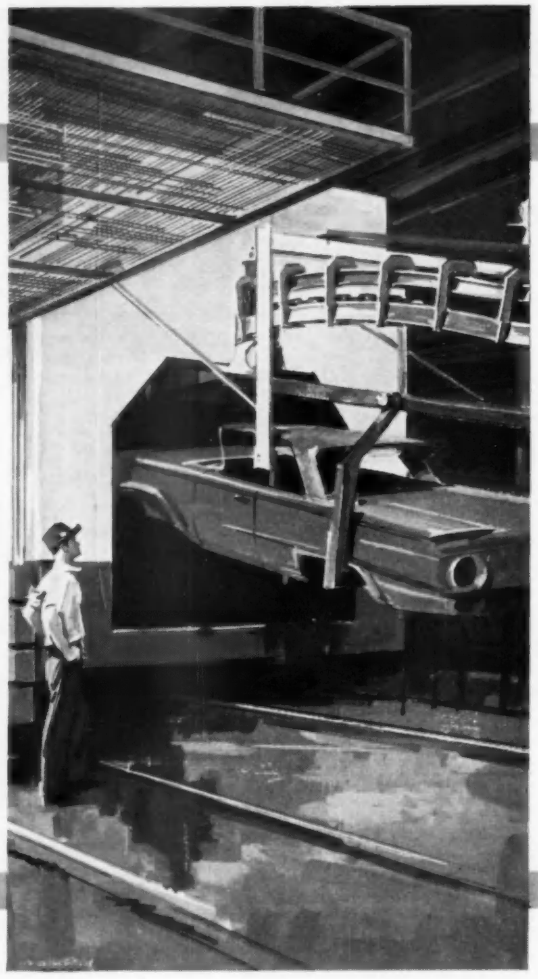
A UNIT OF HOUDAILLE INDUSTRIES, INC.

WALES **STRIPPIT** INC.

242 Buell Road • Akron, New York

In Canada: Strippit Tool & Machine Company, Brampton, Ontario.

Automotively speaking... AMCHEM SPEAKS YOUR LANGUAGE!



Amchem service in automotive phosphating processes goes far beyond the sale of chemicals.

For instance, the Amchem "Technical Service Report" developed over 13 years ago has been adopted as virtually a standard form among leading automotive manufacturers. This monthly report incorporates all pertinent chemical and equipment performance data in one convenient form, has manifold advantages in keeping local and district management informed of line conditions for chemical control and maintenance, produces higher levels of quality through extra vigilance in controlling chemical baths and equipment.

In the past Amchem service has achieved significant advances in automotive prepaint finishing, among them—Deoxidine, the first corrosion-proofing treatment for use in mass production of steel automobile bodies; the first spray process for rust-proofing steel; and Granodine, the spray phosphating process that has become the accepted standard in industry.

Amchem has spent a lifetime (all 46 years of its corporate existence) providing phosphating services to the automotive field. If your requirements embrace more than phosphating chemicals alone, look to Amchem's Metal Protection Laboratories where, automotively speaking, we speak your language!

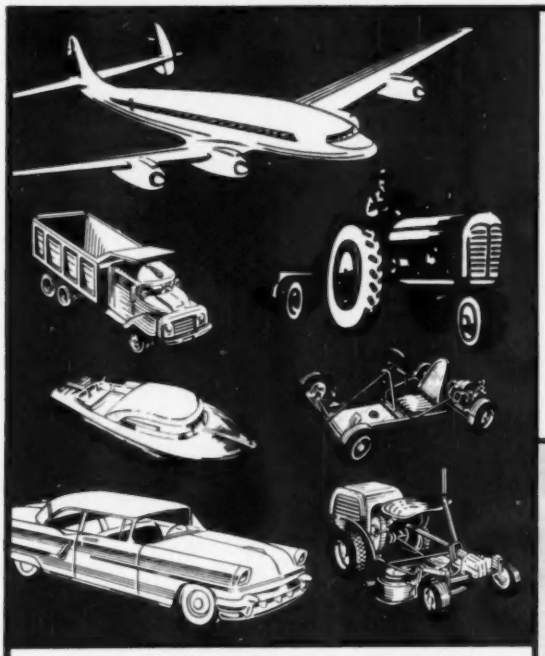
AMCHEM

AMCHEM PRODUCTS, INC.

(formerly American Chemical Paint Co.)
AMBLER, PA.

Detroit, Mich., St. Joseph, Mo., Niles, Calif., Windsor, Ont.

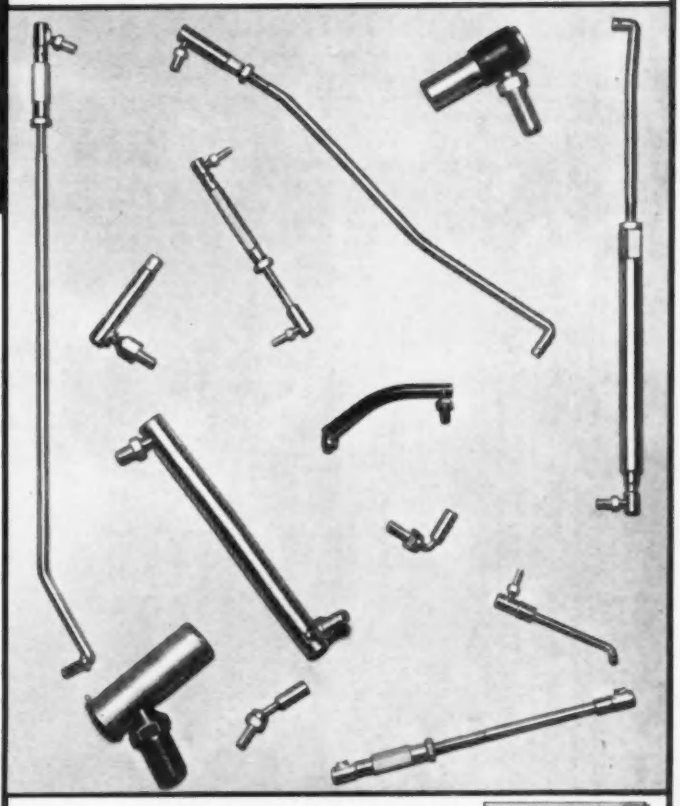
Amchem, Granodine and Deoxidine are registered trademarks of Amchem Products, Inc.



The *Low-Cost* Way to POSITIVE MOTION TRANSMISSION

for

Automobiles • Motor Trucks • Farm Machinery
Tractors • Aero/Space Vehicles • Riding Mowers
Karts • Power Boats • Road Building Equipment



Tourek BALL JOINTS and LINKAGES

Everywhere in automotive, major manufacturers use TOUREK Ball Joints and Linkages to transmit motion positively, efficiently. Years of such use have shown them that these expertly designed, precision-made parts give them *economy* without sacrificing *performance.*

Why does TOUREK continue to be their leading source for Ball Joints and Linkages? Because the TOUREK plant—which houses the most complete line of the most modern specialized equipment for this work—was built especially to provide unmatched capacity for volume production while meeting stringent tolerance specifications. Add 40 years of concentrated experience in this field, and you won't wonder that TOUREK'S list of long-standing automotive customers reads like an industry Blue Book!

TOUREK "Standard" Ball Joints are available in a broad range of styles and sizes, to handle a whole range of assignments from the most delicate assemblies to the toughest heavy-duty tasks. TOUREK Linkages and Rod assemblies can be developed to fit virtually any individual need; we've designed and produced a vast number of them with the greatest success and user satisfaction—we illustrate just a few here.

Our experienced men are strategically spotted all over the country, to give you fast and efficient service. Let us prove what TOUREK Ball Joints and Linkages can give you in *positive motion transmission at low cost*—call or write us now!

★ ***SEND FOR 16-PAGE CATALOG and Ball Joint Prices . . . or tell us when you'd like to have a TOUREK Ball Joint expert call to discuss your special requirements***

Tourek
BALL JOINTS
The Recognized "STANDARD"

J. J. TOUREK MFG. CO.

1901 SOUTH KILBOURN AVENUE • CHICAGO 23, ILLINOIS

World's largest manufacturer of "STANDARD" Ball Joints • Also makers of Pipe Plugs and quality Screw Machine Products • Threading • Tapping • Milling • Drilling • Grinding • Polishing • Plating • Heat Treating • Brazing

ESTAB. 1920

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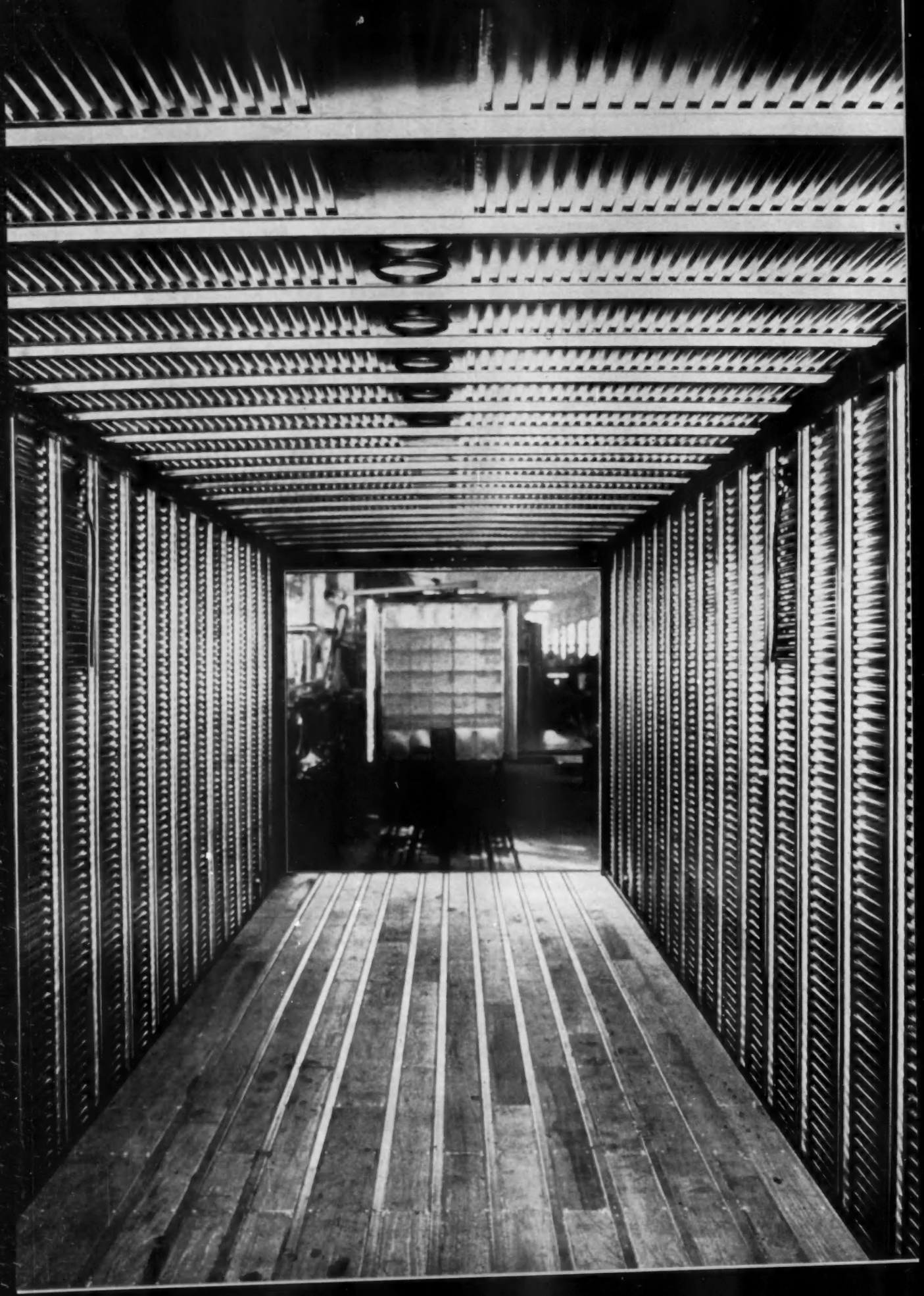

MECHANICAL PROPERTIES*

	YOLOY E HSX	YOLOY E HS	YOLOY E ACR
Carbon, max. %	.18	.18	.10
Manganese, max. %	1.00	1.00	.60
Phosphorus, max. %	.09	.10	.05
Sulphur, max. %	.05	.05	.05
Silicon, max. %	.30	.30	—
Copper %	.20/.50	.20/.50	.25/.50
Nickel %	.40/1.00	.40/1.00	.60 max.
Chromium %	.20/.60	.20/.60	.35 max.
Yield point, psi	45,000 min.	50,000 min.	45,000 max.
Tensile Strength, psi	80,000 max.	70,000 min.	60,000 max.
Elongation in 2", %	25.0 av.	.22 min.	30.0 av.

*Mechanical properties for Yoloy E steels up to ½" in thickness.

ADDITIONAL TYPICAL MECHANICAL PROPERTIES

Ultimate compressive strength: equal to tensile strength.
Ultimate shearing strength: equal to ¾ of tensile strength.
Modulus of elasticity, psi_____29,000,000

ASTM STANDARD COLD BEND TESTS

½" thick and under shall bend 180° around pin whose diameter is equal to one (1) times thickness of sheet, plate or bar.
Over ½" thick shall bend 180° around pin whose diameter is equal to two (2) times thickness of the bar or plate.

FABRICATING PRACTICE FOR COLD FORMING

THICKNESS OF PRODUCT	YOLOY E HS SUGGESTED MINIMUM INSIDE RADII	YOLOY E HSX SUGGESTED MINIMUM INSIDE RADII
up to 1/16" inclusive	1 x thickness	1 x thickness
Over 1/16" to 1/4" inclusive	2 x thickness	1½ x thickness
Over 1/4" to 1/2" inclusive	3 x thickness	2½ x thickness

YOLOY

high strength steel lasts longer, weighs less, does more for you per mile, per load

Youngstown's Yoloy E steel is brawny, durable, with up to 40% more strength than ordinary steels. It lasts longer, is easier to form, weld, use. It has up to 6 times more corrosion resistance. Even paint adheres better.

Cars, trucks and trailer bodies of rugged low-cost Yoloy E are strongest per pound, most economical per mile on roads, today. The nation's big trucking firms know this and make it pay off for them in performance.

Get the proved longer service, easier fabrication and assembly, the economy of remarkable Yoloy E steel. Choose from 3 different types, each made to fit your special requirements: Yoloy E HSX, Yoloy E HS, and Yoloy E ACR.

Yoloy steels are a product of Youngstown integrated steel-making where quality and delivery are rigidly controlled from mine to open hearth to high-tensile cut plate and coiled sheet. For your high strength steel needs, choose Yoloy, one of over 800 quality steels from Youngstown.

Youngstown – growing force in steel

For more information about Yoloy Steel, write: Department 3-B.
The Youngstown Sheet and Tube Company, Youngstown, Ohio

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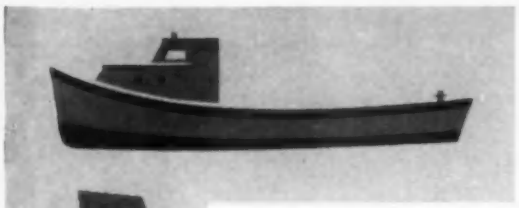
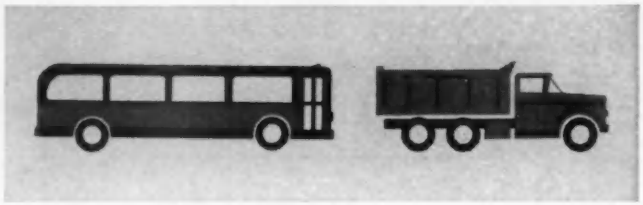
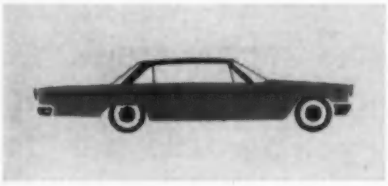
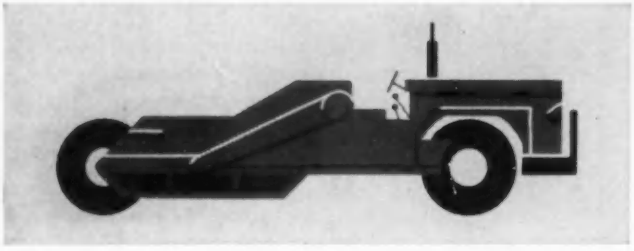
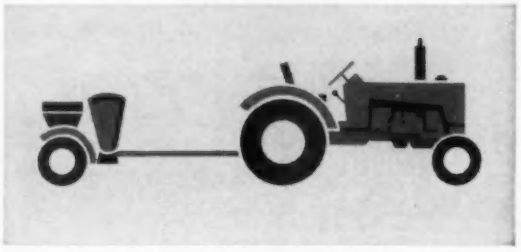




what's so special about special service tools?







Tap the special talents of special service tools. They telescope service time . . . make the toughest job a breeze for field mechanics. They protect fragile parts from damage. They have a special knack of turning your customers' gripes to grins by cutting equipment downtime . . . and that extra-special trick of converting user satisfaction into future sales for you.

Small wonder so many manufacturers (of boats and buses, cars and cranes, planes and plows, trucks and tractors, and on and on) are bringing their special service problems to Kent-Moore Organization. For nearly 40 years, Kent-Moore has been working with service engineering staffs like yours to design and build the just-right special tools to meet the service needs of power equipment. Over 3000 tools are available off-the-shelf. Dormant in our designers' dreams are many more—just waiting for your problem. Don't take our word for it. Call and see.

KENT-MOORE ORGANIZATION, INC.

28635 MOUND ROAD, WARREN, MICHIGAN • ENGINEERS AND MANUFACTURERS OF SERVICE TOOLS AND EQUIPMENT

61-2A

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Bright Anneal

TRIM STOCK AND OTHER STAINLESS STRIP TO A DURABLE MIRROR FINISH *without Chrome Depletion*

IN EF CONTINUOUS

Stainless Strip Bright Annealing FURNACES

Many Outstanding Advantages

✔ **DESIGNED AND BUILT BY THE WORLD'S MOST EXPERIENCED BUILDER OF STAINLESS STRIP BRIGHT ANNEALING FURNACES.** 21 efficient, high production lines installed or under construction. EF has more installed capacity, and more experience in bright annealing stainless strip than any other furnace manufacturer.

✔ **VERTICAL OR HORIZONTAL DESIGNS**—whichever best suits your building conditions and specific production requirements.

✔ **FUEL FIRED OR ELECTRICALLY HEATED**—to use whichever heat is most economical in your plant. No restriction on width. Electric furnaces heated with our proven cast alloy resistor elements; assuring highly efficient heating. None better.

✔ **EF JET OR STATIC COOLING**—jet or combined jet and static cooling, shortens the cooling section.

✔ **HYDROGEN, DISSOCIATED AMMONIA OR VACUUM PROCESSING.** Continuous vacuum furnaces, one of EF's latest developments, save on overall installation and operating cost.

✔ **COMPLETE UNIT RESPONSIBILITY**—furnished completely erected with all controls, terminal equipment and product handling, ready for immediate on-line operation.

For the highest finish, and most durable corrosion resistant surface, contact the EF heat treating engineers. *You'll find it pays.*

THE ELECTRIC EF FURNACE CO. GAS • OIL • ELECTRIC

THE ELECTRIC FURNACE CO.

Fuel Fired and Electrically Heated HEAT TREATING FURNACES for Processing any Product, in any Atmosphere, any Hourly Output Required

Salem - Ohio

SUBSIDIARIES—Turnkey Engineering Co., Inc., South Gate, Cal. • Canefco Limited, Scarborough, Ontario
SALES REPRESENTATIVES—2842 West Grand Blvd., Detroit 2, Mich. • also 968 Coleman Rd., Cheshire, Conn.

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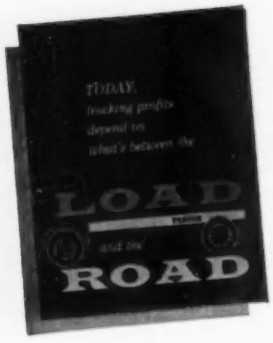
The One BIG FACTOR That Increases A Truck's Life!



For the complete story on Parish heat-treated alloy siderails, write for the interesting, illustrated booklet—"Load and the Road."

Commercial vehicles — from off-the-road loggers to transcontinental vans —are being designed to carry heavier loads farther at a faster pace. And the BIG FACTOR that means longer life for many of these vehicles is extra-strength Parish siderails.

Parish alloy steel siderails are *277% stronger* than ordinary carbon steel. Made of heat-treated chrome manganese molybdenum steel, they're the finest combination of modern materials and design know-how. They mean extra strength without extra weight.

Parish siderails absorb shock better, hold their shape better, than do conventional siderails. Misalignments caused by frame warping are almost non-existent. Drive train components last longer. Maintenance costs and downtime are reduced.

That's why some 30 leading truck and trailer manufacturers are now designing their vehicles around Parish heat-treated siderails—the *extra strength* siderails that stay aligned.

PARISH

PRESSED STEEL

DIVISION OF DANA CORPORATION • READING, PENNSYLVANIA

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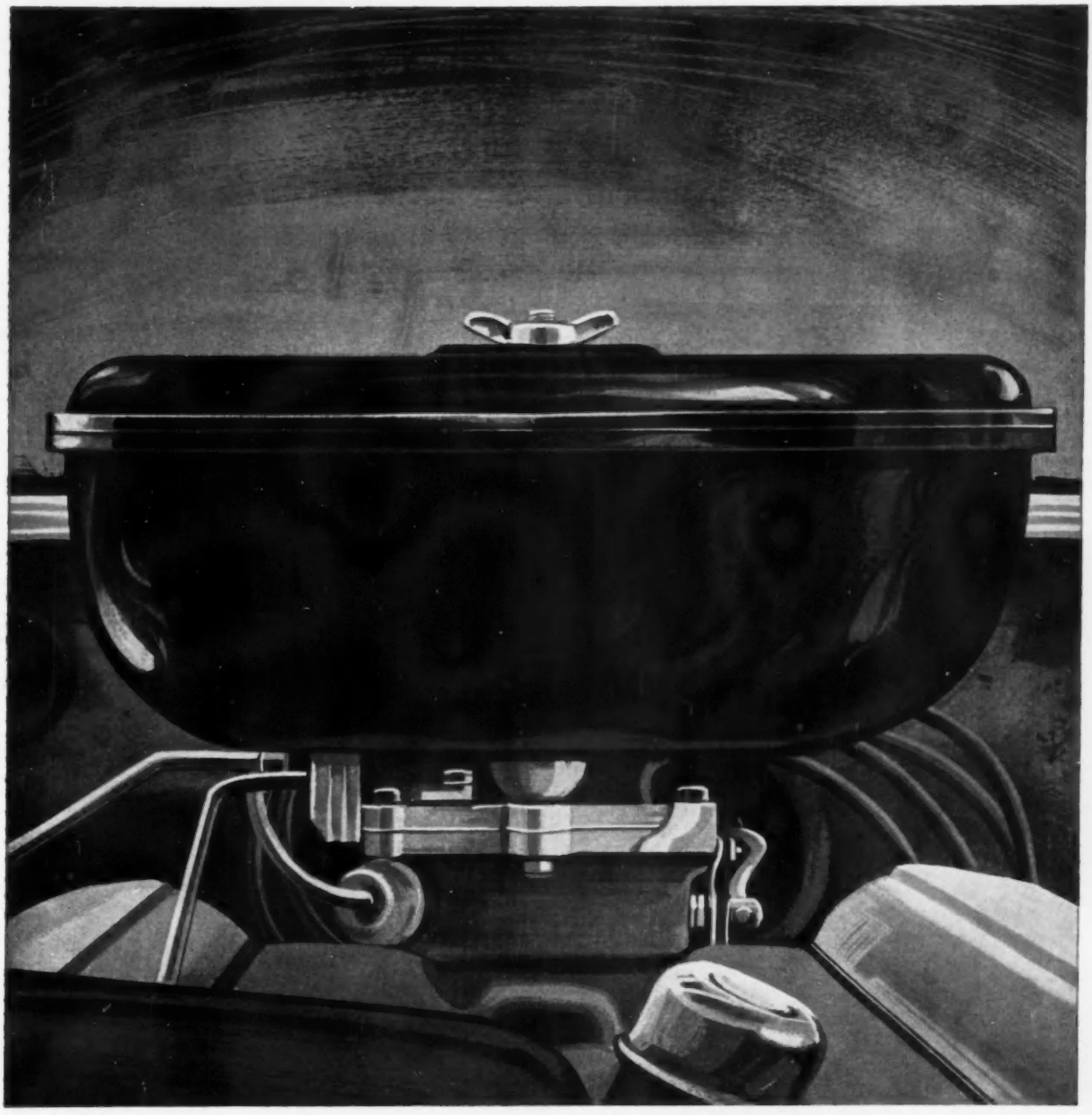

THE NEW PHENOLICS

Let your ideas for tomorrow take shape in a host of hard-working materials • When you're getting ready to break with tradition, take a look first at the *new* phenolics.

Then lift the hood. You'll find a lot of places where you can put today's phenolics to work.

They're huskier; impact strength is up—as high as 15 ft.-lb. per inch. They resist heat as high as 500°F. Electrical properties, always good, are still better now—and improving all the time.

Idea: Did you know you can get Durez phenolics designed specifically for wet-on-one-side, dry-on-the-other situations? Think what that might mean in terms of *noncorroding hose connectors.*

Idea: How about a low-cost *distributor bowl case* of medium-impact phenolic? A nonrusting enclosure for accessory motors? A phenolic *air cleaner bowl* that hushes rattle and vibratory hum?

Idea: Or consider what you could do with a Durez glass-filled phenolic that outlasts metal in *oil-pump gears* and *automatic transmission parts.*

Remember, too, that when you design with phenolics you almost always save money. They can save you the whole cost of machining and finishing a part. They're low in price, stable in price, always available.

These newer, harder-working materials come from Durez in hundreds of formulations—give you a variety and a versatility that let you dream a little. To put the touch of tomorrow in today's design, come to Durez for *plastics that take you where other plastics can't go.*

For descriptive Bulletin D400 or for help on a specific application, write us.

DUREZ PLASTICS DIVISION

8203 Walck Road, North Tonawanda, New York

HOOKER CHEMICAL CORPORATION

HOOKER CHEMICALS PLASTICS

EATON-RELIANCE
FASTENERS

unseen muscles
in assembled products

Because the initial cost of a fastener represents only a minor part of the total cost of "using" it in an assembly, the bulk of your fastener savings will come from these features: engineering assistance to insure use of proper fastener, ease of handling on the assembly line, stock availability and service. Metal quality, strength, vibration resistance, durability and manufacturer's reputation are also important parts of your "fastener package."

You can get all of these things by specifying Eaton-Reliance fasteners. They've been used by manufacturers of assembled products for almost half a century.

Write for our new 16 page full line catalog containing complete information.

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RELIANCE DIVISION
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special K-H brake power for every wheel

Installed as original equipment on late model trucks, Kelsey-Hayes' new air-actuated hydraulic braking system provides three extra safeguards for smooth, positive stopping under all driving conditions . . .

1. If rear hydraulic line or wheel cylinder fails, you still have full front brakes with their own power assist!

2. If front hydraulic line or wheel cylinder fails—you still have full rear brakes with their own power assist!

3. If air supply should fail—you still have direct mechanical actuation of full rear brakes!

It's hailed as the industry's safest truck brake! Write for full information. Kelsey-Hayes Company, Detroit 32, Michigan.

KELSEY HAYES COMPANY

World's largest producer of automotive wheels, hubs and drums

OPERATIONAL PLANTS: Detroit, Jackson and Romulus, Michigan; Los Angeles, California; Philadelphia, Pennsylvania; Springfield, Ohio; Rockford, Illinois; New Hartford and Utica, New York; Davenport, Iowa; Windsor and Woodstock, Ontario, Canada.

K H

Cooling off hot problems—

24 successes in 24 attempts...and ready for the 25th

Automotive air conditioning manufacturers have come to think of us as helpful *control* specialists in their highly specialized field.

Since 1953 that's been the case. Our engineers have been on the "hot spot," ironing out car air conditioning control and systems bugs in a hurry.

This same veteran technical task force has come up with 24 new cool-working solutions . . . designing and building thermostatic expansion valves, pressure regulators, drier-receivers and distributors shown above.

Whether a single component or the complete control package is the hot problem in your auto air conditioning, we'd like to make it our 25th challenge. And you get the follow-up economy of high-volume production plus the convenience of coast-to-coast jobber coverage for future replacements.

A note on your letterhead will bring fast action from Controls Company of America, Milwaukee 10, Wisconsin.

These independent automotive air conditioner and automobile manufacturers rely on Controls Company of America:

CHRYSLER
FORD
AMERICAN MOTORS
FORD, MERCURY DIV.
ARA
CAPITOL
CLARDY
CLIMATIC AIR
FRIGIKAR
FRIGQUIP
J. E. MITCHELL
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Creative controls for industry

CONTROLS COMPANY OF AMERICA

HEATING AND AIR CONDITIONING DIVISION

2415 N. 32nd Street, Milwaukee 10, Wisconsin • Cooksville, Ontario • Zug, Switzerland

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CONTINUOUS PERMA-GROOVE

Performance Superiority at Economical Cost

The "Long-Life" Piston with Cast-Anchored Steel Top Ring Section

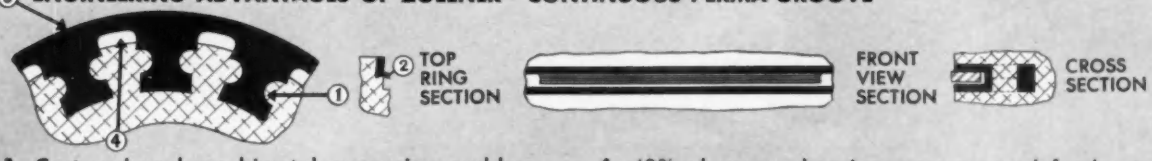
Design adaptable to any type piston

Superbly Engineered

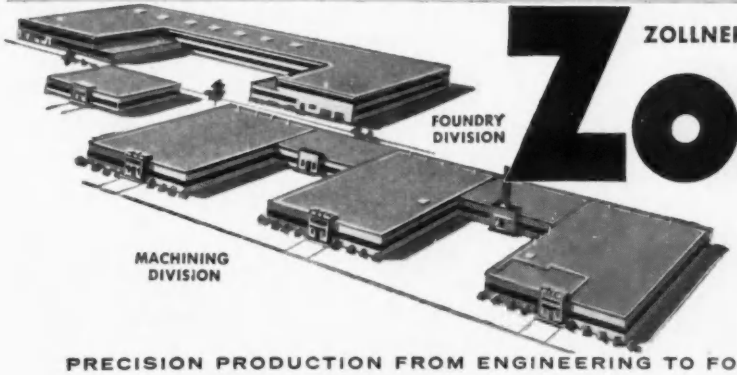
- ★ FOR HIGHEST WEAR RESISTANCE
- ★ FOR COOL OPERATION
- ★ FOR MINIMUM OIL CONSUMPTION
- ★ FOR MINIMUM WEIGHT INCREASE
- ★ FOR ECONOMICAL COST

We suggest an immediate test of these advantages for your engine.

③ ENGINEERING ADVANTAGES OF ZOLLNER "CONTINUOUS PERMA-GROOVE"



1. Cast-anchored—no bimetal expansion problem.
2. Dovetailed edges keep insert securely in place.
3. 100% steel bearing area for wear resistance.
4. 40% aluminum bearing area exposed for heat conductivity and cool operation.
5. Light in weight.



ZOLLNER CORPORATION • FORT WAYNE, IND.

ZOLLNER

HEAVY DUTY PISTONS

PRECISION PRODUCTION FROM ENGINEERING TO FOUNDRY TO FINISHED PISTONS

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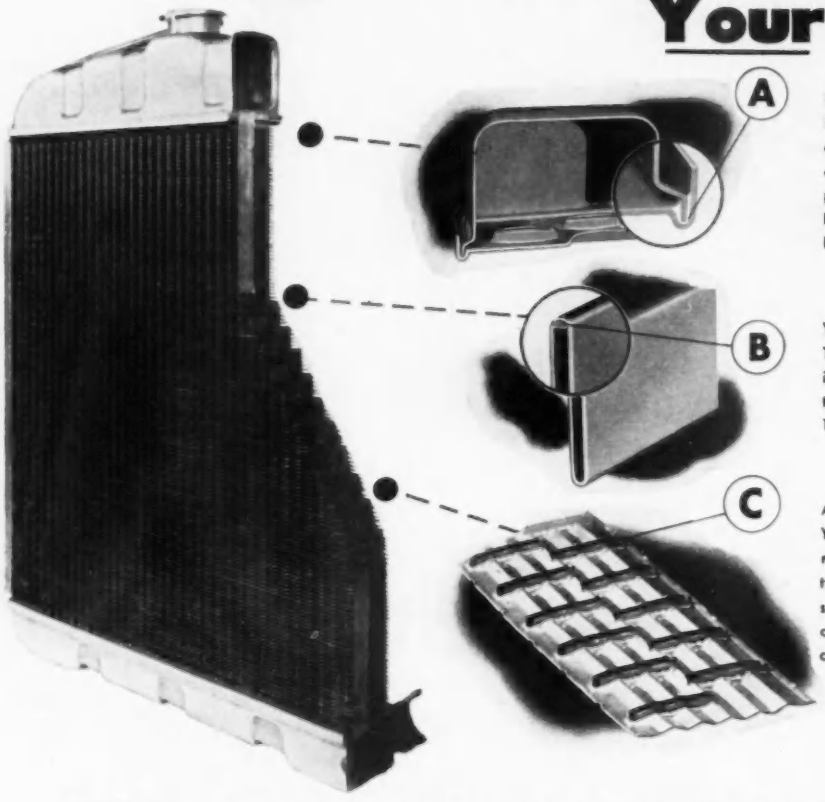
BUILT TO TAKE IT...

Exclusive YOUNG Design, Engineering Features and Manufacturing Methods make *Young* RADIATORS Your Best Buy!



A Exclusive Young *Double Grip* Header Plate to Tank Joint withstands 44 million consecutive vibrational shocks in shake-down tests. Fused with controlled temperature solder to produce sure, stronger bond, and eliminate common causes of leakage.

B Young fully-soldered *Double Lockseam* Tubes provide rugged backbone, increasing unit strength 100% . . . adds years to the life of Young Cores and Radiators. The most rugged structure known.

C Accurately flanged tube openings in Young fins assure positive joining and maximum heat transfer at all times between primary tube and secondary fin surfaces. Specially corrugated fins increase and control air turbulence and cooling effect.

There is virtually no limit in the number of applications in which Young heavy-duty radiators may be used. Standard radiators are available for regular use or for special equipment design. Units built for all requirements in the automotive, agricultural, industrial, and their varied fields, exceed the most rigid requirements. Superior design and construction features, plus optimum performance, dependability and economy, prompt many of America's foremost original equipment manufacturers to specify Young heat transfer components for all manner of mobile and stationary applications.

Whatever your cooling problem . . . space limitation, load, air restrictions, mounting or cores, call upon Young's 33 years of engine cooling experience to help you. There's no obligation.

YOUNG RADIATORS ARE USED WHERE THE GOING IS TOUGH!

YOUNG RADIATOR COMPANY

709 S. Marquette Street • General Offices: Racine, Wisconsin
Plants at Racine, Wisconsin and Mattoon, Illinois

Write to Dept. C-101 for New General Catalog No. 160
Showing our Complete Line of Young Heat Transfer Products

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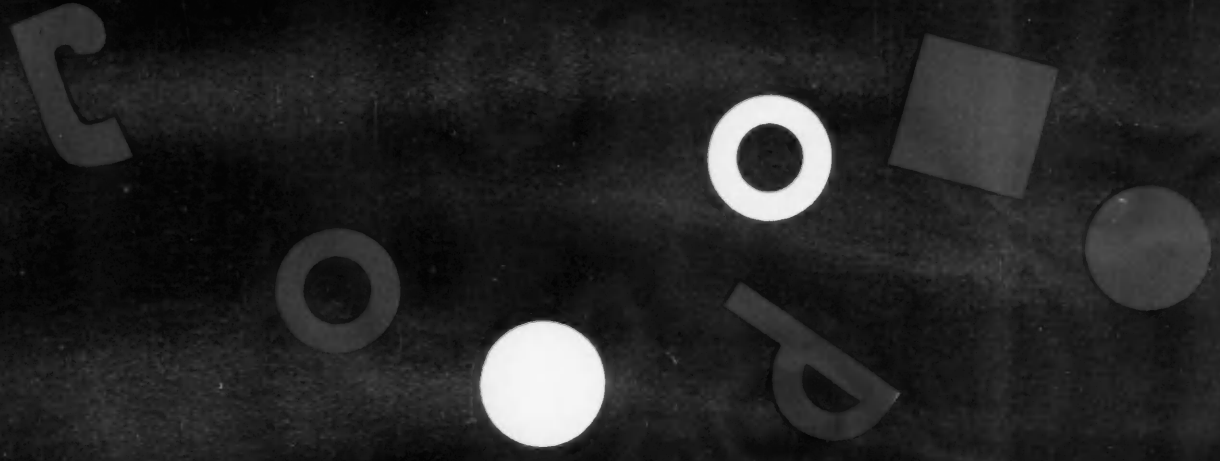
Circle 264 on Inquiry Card for more data

SILICONE NEWS from Dow Corning

SILASTIC LS
fluorosilicone rubber

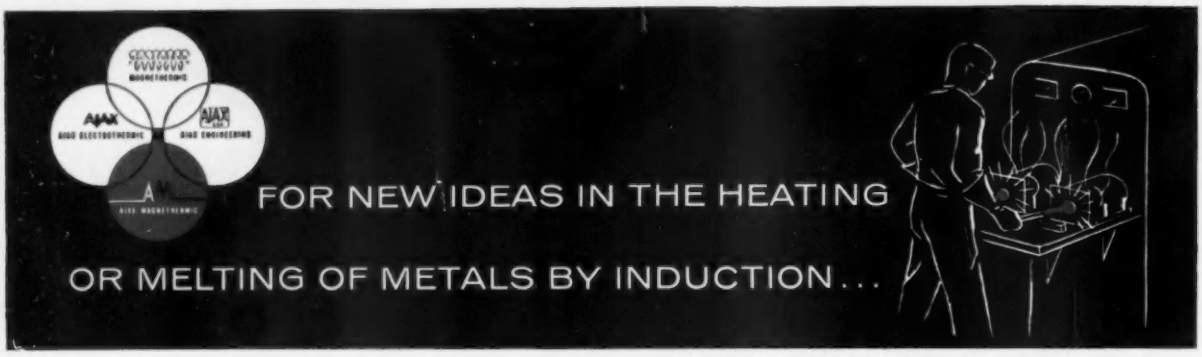
is successfully solving design problems in sealing solvents, oils and fuels at temperatures from —100 to 350 F



Send for brochure detailing the benefits of Silastic® LS, the Dow Corning fluorosilicone rubber . . . Address Dept. 950

first in silicones

Dow Corning CORPORATION
MIDLAND, MICHIGAN



Equipment for heating steel bars for forging, one of many products of AM for the heating or melting of metals by Induction.

WATCH AM

AJAX Magnethermic CORPORATION

"induction heating is our only business"

GENERAL OFFICES P.O. Box 839 • Youngstown 1, Ohio
TRENTON DIVISION 930 Lower Ferry Road • Trenton 5, New Jersey
YOUNGSTOWN DIVISION 3990 Simon Road • Youngstown 12, Ohio
AJAX MAGNETHERMIC, CANADA, LTD. Box 779 • Ajax, Ontario

Automatic Heating by Induction for forging an automotive part.

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SOLUTIONS TO GEAR PROBLEMS

PROBLEM: TO BOOST TRACTOR AXLE SPLINE STRENGTH WITHOUT HIGHER COST

To increase strength of tractor axle shafts produced by a major manufacturer without increasing diameter, Michigan recommended the use of a Roto-Flo machine to cold roll the splines. This resulted in a 60% increase in torque load capacity due to the cold working at the normally weakened section. The "chipless machining" process reduced stress concentrations by 37% and increased production rate three-fold over the slower previous hobbing method. The same machine is used for different sizes of shafts. There were also major savings in tool costs over hobbing.

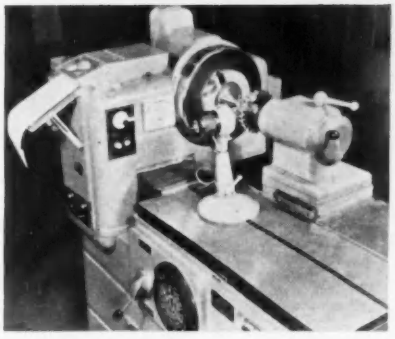
Roto-Flo gives stronger splines at lower cost

PROBLEM: NEEDED FAST ACCURATE INDEXING IN ¼ DEGREE INCREMENTS

Operations performed on a missile part required extremely accurate indexing in quarter degrees. Precision indexing tables used before required special gage blocks, trigonometry tables and a lot of time. Michigan's answer was a double table version of its Milichex rotary indexing table. This new version, Model M2X-900, provides instant indexing to ¼ degree settings with an accuracy of ¼ second of arc. No gage blocks or trig tables are needed. Operator merely indexes upper and lower tables to proper settings and Milichex automatically locks into exact angular position.

This Milichex indexes in ¼° increments

PROBLEM: 100% CHECK OF GEAR TOLERANCES TO TENTHS IN PRODUCTION

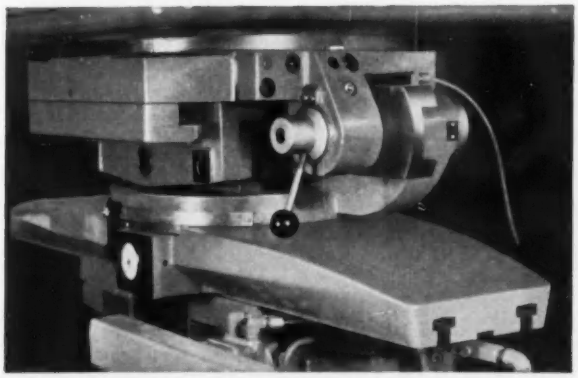


Production lead checking to laboratory tolerances on a 1218-A

A jet engine production bottleneck was the time required to accurately check the lead angle of gears to 0.0003 inch. A Michigan Sine Line 1218-A Lead Checker answered this need. Originally a 'laboratory' type checker, the machine with its precision optical system eliminates the need for "operator feel", records all checks, has the ruggedness for continuous production checking.

PROBLEM: TO SHAVE ANY COMBINATION OF CROWN & TAPER ON SAME MACHINE

Solved by a compact attachment for the Mark II shaving machine. Setting permanently installed attachment to scale controls amount of taper. An eccentric bushing in the attachment controls taper independently. For uncrowned untapered gears, both are set to 'zero'. Gears can be tapered or crowned with either transverse or modified underpass method. For spur gears, underpass method can also be used.



Taper & crown attachment for the Mark II gear shaver

MICHIGAN TOOL COMPANY, 7171 E. McNICHOLS RD., DETROIT 12, MICHIGAN

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Quantity
PRODUCTION
of
GREY IRON CASTINGS

✻

ONE OF THE NATION'S
LARGEST AND MOST MODERN
PRODUCTION FOUNDRIES

✻

ESTABLISHED 1866

THE WHELAND COMPANY

FOUNDRY DIVISION

MAIN OFFICE AND MANUFACTURING PLANTS

CHATTANOOGA 2, TENNESSEE

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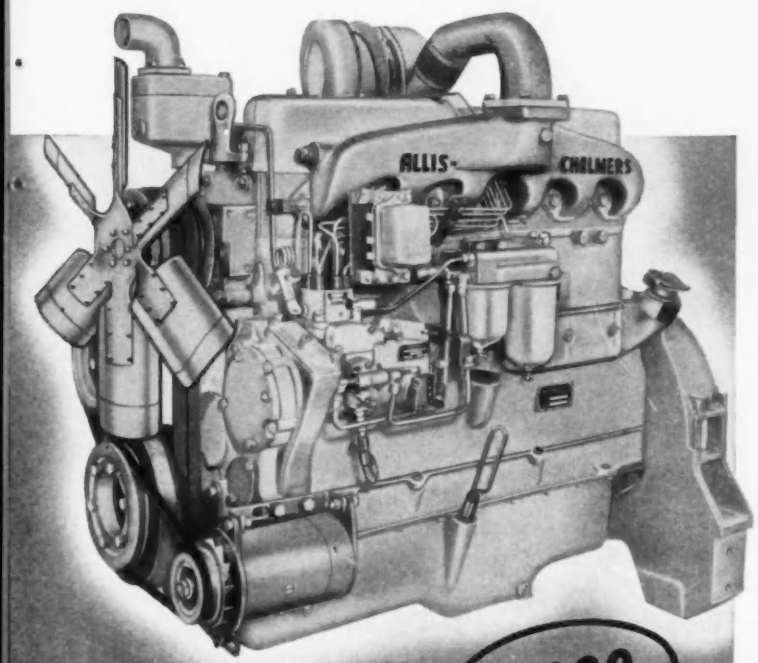
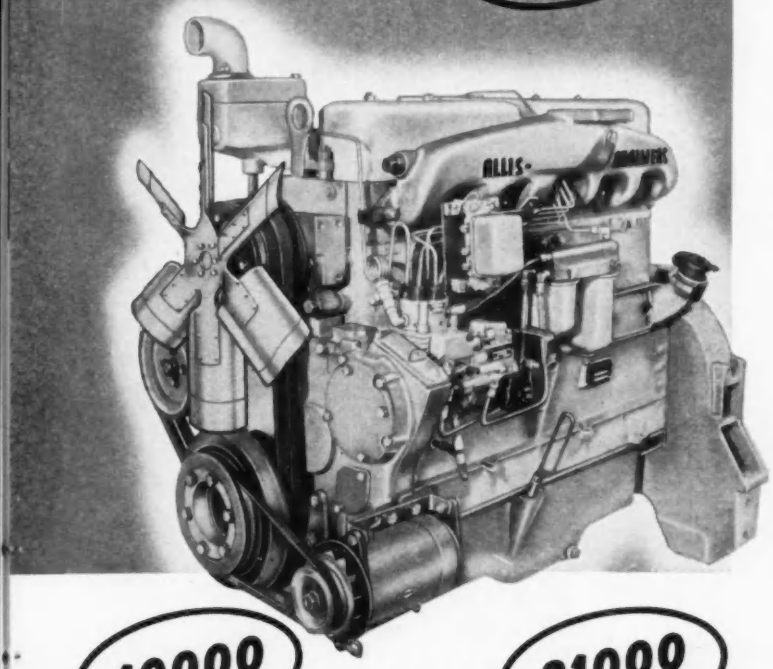
11000 and 10000 JOIN THE A-C TEAM OF MODERN DIESEL

WORK POWER



210 hp (turbocharged) **11000**



145 hp **10000**

350 hp (turbocharged) **21000**

235 hp **16000**

Now there are four of a NEW kind designed to give you...

LIGHT APPETITE FOR FUEL

Controlled turbulence mixes fuel and air thoroughly. Assures complete combustion — fuel savings to 27% and more!

"This new engine is not only doing the work of the larger engine it replaced, but is saving 30% and more on fuel!"

HIGH, SUSTAINED TORQUE — RAPID RESPONSE

You have **work power** that hangs on to overloads over the entire speed range.

"Amazingly rapid response under heavy loads."

CLEANLINESS IN DESIGN AND OPERATION

Efficient combustion converts fuel to **work power,** not smoke. There is no excess "plumbing" to invite service problems.

"Their clean, simple design makes them easy to service. To our knowledge, they are the best buy in a diesel engine for rough work today!"

FAST STARTING

These engines start "right now" directly on diesel fuel. No ether, no pre-heating, no long work-robbing warm-ups even in freezing temperatures.

"Starting is excellent, even in the 0 to 10° range which we have fairly often here."

• • •

Find out how profitably this new kind of **work power** can serve you. See your Allis-Chalmers dealer or write for free bulletins — BU-718 on the 11000 and 10000; BU-540 on the 21000 and 16000. Allis-Chalmers, Milwaukee 1, Wisconsin.

ALLIS-CHALMERS

POWER FOR A GROWING WORLD

BE-24 A

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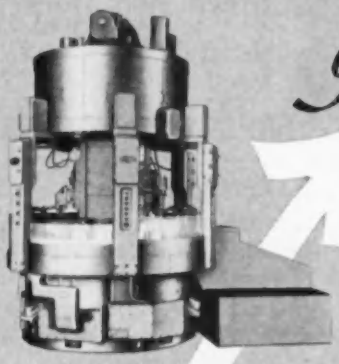
to cut costs when cutting metal...

You can't beat a

BULLARD

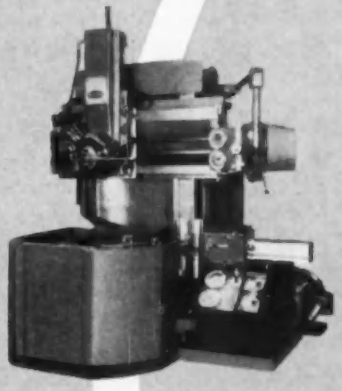


Mult-Au-Matic, Type "L"
10" with 6, 8, 12, or 16 spindles, 14" and 18" with 6 or 8 spindles.

Day in and day out — in metalworking plants around the world — modern machine tools designed and built by The Bullard Company are proving their ability to produce more in less time — thus, reducing the cost per piece.
It will pay you to investigate and compare the many advantages offered by modern Bullard machine tools.

The Bullard Company Bridgeport 9, Connecticut

Ask About Our Leasing Or Time Sales Plans

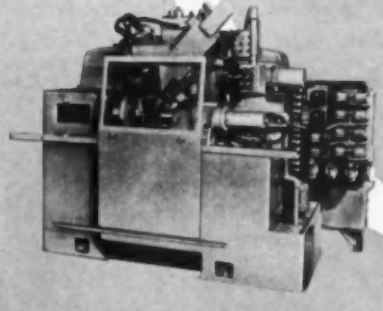


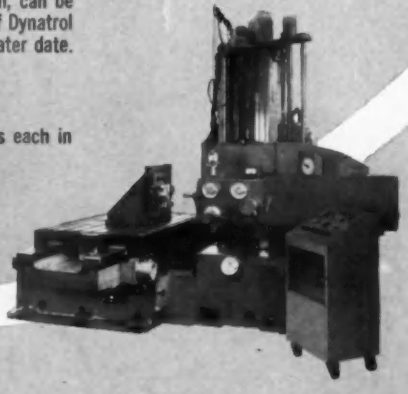
Dynatrol V.T.L. and Vertical Boring & Turning Mill
26" to 86" in 10" increments and 108", 124", and 144" table sizes.

Man-Au-Trol V.T.L. and Vertical Boring & Turning Mill
For fully automatic operation, can be applied to any or all heads of Dynatrol at time of ordering or at a later date.

Dynamill H.B.M.
In 3", 4" and 5" spindle size. Many combinations of bed length, table size and vertical travel.

Hydra-Feed Lathe
Automatic and tracer models each in four sizes.





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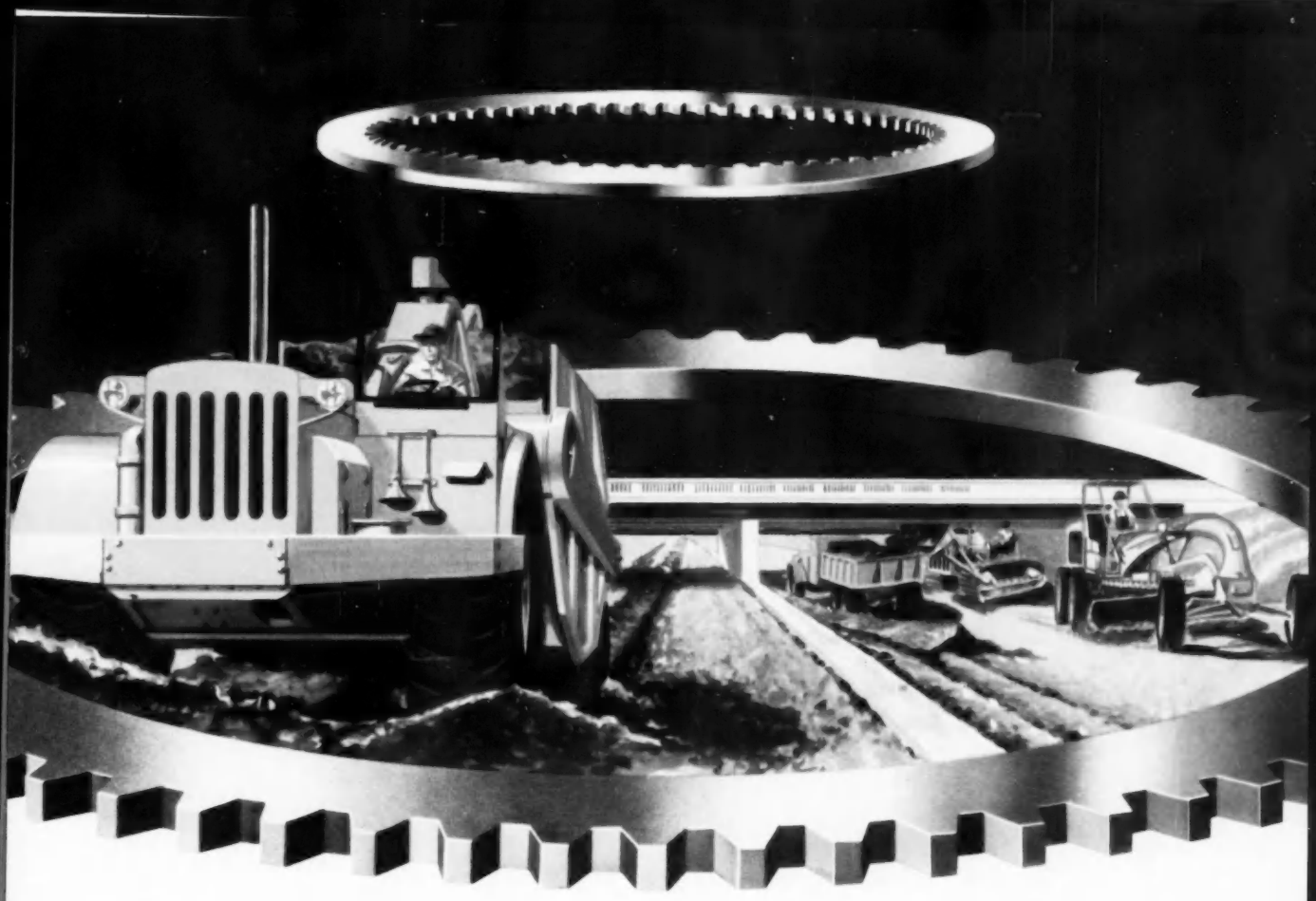
Circle 210 on Inquiry Card for more data



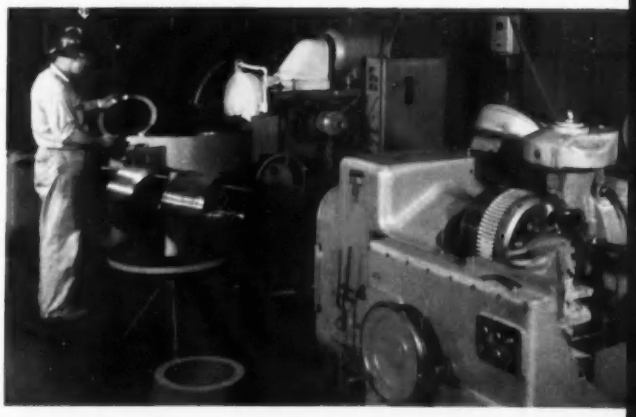
Ingersoll CROSS-ROLLED Clutch Steel Helps Move the Earth

To meet the punishing demands of off-highway equipment, Ingersoll Steel Division melts, CROSS-ROLLS, and processes to customer specifications, special analysis clutch steel. In short, Ingersoll can:

- **Melt (electric furnace) steels to special analyses**
- **CROSS-ROLL ingots to sheet and light plate**
- **Blank or shear**
- **Produce rings with internal or external teeth**
- **Rough and/or finish grind the surfaces**

Ingersoll clutch steel is also widely used in the automotive and tractor industries.

Write for Ingersoll's new full-color facilities and products brochure: "Experts in Specialty Steels."



Ingersoll's gear shapers, hobbing machines and surface grinders produce precisely finished clutch plates to customer specifications.

INGERSOLL B-W STEEL

Ingersoll STEEL DIVISION

Borg-Warner Corporation

NEW CASTLE, INDIANA

Heating and Ventilating Division

Durable, dependable, rugged. Evans heaters are *built for trucks!* They're tailored to truck manufacturer specifications. They're custom-engineered to provide the right BTU rating and proper heat distribution *for your specific truck models.* And they're designed for quick-and-easy maintenance.

Twenty-five years of engineering experience—plus rigorous tests and assembly-line inspections—go into the production of every Evans heater. This product quality has made Evans the largest manufacturer of heavy-duty truck heaters. And because of confidence in the quality of its products, Evans backs its heaters with a one-year/50,000-mile warranty.

Our engineers are ready to work with yours to design an Evans heater to meet your requirements. Write Evans Products Company, Dept. P-3, Plymouth, Mich.

Regional Representatives: Chicago, R. A. Lennox; Detroit, Chas. F. Murray Sales Co.; Allentown, Pa., P. R. Weidner.

EVANS
PRODUCTS
COMPANY
PLYMOUTH, MICHIGAN

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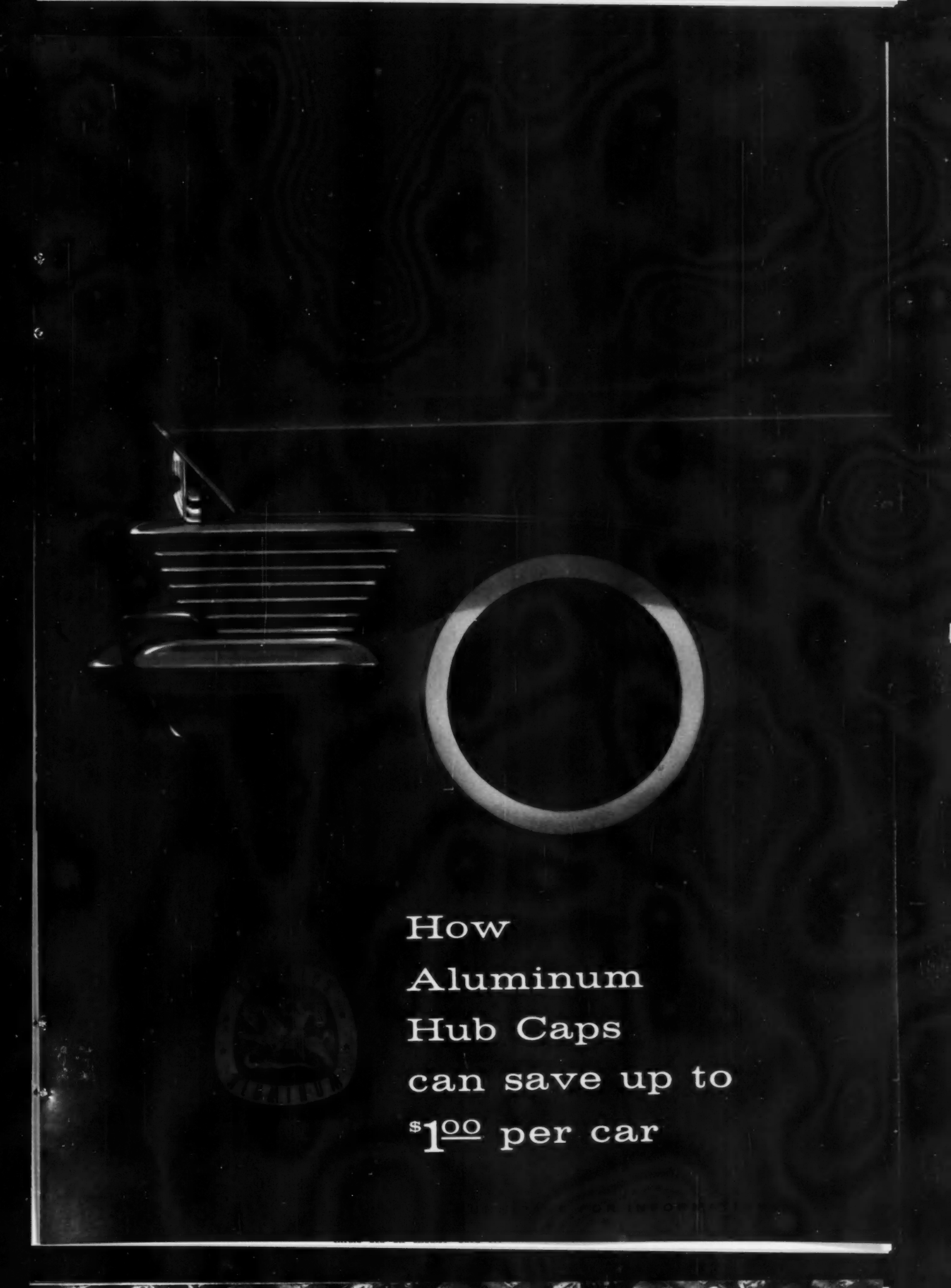
Circle 212 on Inquiry Card for more data ⟶


How
Aluminum
Hub Caps
can save up to
$1.00 per car

Aluminum Hub Caps

offer savings in fabricating and finishing, provide greater freedom in design

Recent design and sample fabrication work has pointed out the potential cost savings with aluminum hub caps of from 40¢ up to $1.00 per car (based on four hub caps per car). These savings, like the savings on other automobile parts that are part of the original car cost to the manufacturer, can be substantial per model in a high production year. The total savings, if projected to the automobile industry, would run up to millions of dollars.

These figures of 40¢ to $1.00 are based strictly on fabricating and finishing savings. Savings made possible because of aluminum's ease of fabrication and anodized finishes that are often less costly than finishing processes required with other metals.

From both a cost and design standpoint, hub caps currently being made of various other metals cannot be formed to the degree that aluminum permits, therefore a wider variety of formed details and sharp embossments are possible with aluminum. And even in the case of metals that can be formed to the finer details and deeper cross sections possible with aluminum, there is still a distinct advantage in favor of aluminum. The reason: these other metals require electro-plating or other costly finishing operations. Anodized aluminum finishes are more economical.

Aluminum hub caps offer "bonuses", too. They are strong, lightweight, rustfree. And with their handsome clear or color anodized finishes they can add sales appealing beauty to your fine cars of tomorrow.

Aluminum hub caps (and wheel covers) are one of many automobile applications where strong, lightweight, rustfree aluminum can help you improve parts and reduce costs. For full details, talk to Reynolds Aluminum Specialists. They will help you on individual parts and will also help you plan a cost-cutting aluminum package that includes a variety of parts. And they will bring you details of Reynolds services on aluminum mill products and fabricated aluminum parts. *Contact Reynolds Metals Company new sales office at Northland Drive and Northwestern Highway, P.O. Box 5050, Seven Oaks Station, Detroit 35—phone KEnwood 7-5000. Or contact your nearest Reynolds Office or write P.O. Box 2346-MU, Richmond 18, Va.*

NOTE: Before you buy any part—have it designed and priced in aluminum. Basic material costs do not determine part costs. New techniques and processes—applicable only to aluminum—can give you a better product at a lower final cost.

Reynolds Aluminum

the metal for *automation*

TRADE MARK

Watch Reynolds TV show "Harrigan & Son", Fridays; also "All Star Golf", Saturdays—ABC-TV.

One Lamb FHP motor...up to 100,000 carbon copies mass-produced to exacting specifications

From a prototype . . . hundreds OR thousands of motors with absolute uniformity. Each and every motor produced has the same, discriminating, "built-in" perfection that you can expect with Lamb® manufacturing. This precise mechanical and dimensional uniformity of motor as an integral component for your powered product is extremely important . . . and Lamb makes sure you get it!

If you have a special motor problem . . . here's what you can expect from Lamb! *Into the design* of a Lamb motor goes years of experience in powering components for aircraft, domestic and industrial products. *Out of the design* comes a personalized motor that's dependable, smooth and efficient.

Cost-wise you're way ahead, because Lamb Motors are mass-produced at the most favorable cost.

Write today for descriptive folder. Or ask to have a District Engineer call and set up a personalized "Motor Conference".

THE LAMB ELECTRIC COMPANY · Kent, Ohio
A Division of American Machine and Metals, Inc.
In Canada: Lamb Electric — Division of Sangamo Company, Ltd.
Leaside, Ontario

Lamb Electric
SPECIAL APPLICATION FRACTIONAL HORSEPOWER **MOTORS**

Divisions of American Machine and Metals, Inc., New York 7, New York TROY LAUNDRY MACHINERY
RIEHLE TESTING MACHINES • DE BOTHEZAT FANS • TOLHURST CENTRIFUGALS • FILTRATION ENGINEERS • FILTRATION FABRICS
NIAGARA FILTERS • UNITED STATES GAUGE • RAHM INSTRUMENTS • LAMB ELECTRIC CO. • HUNTER SPRING CO. • GLASER-STEERS CORP.

Circle 213 on Inquiry Card for more data

News of the MACHINERY INDUSTRIES

Machine Tool Net New Orders in January Amounted to $55 Million, Slightly Above the 1960 Monthly Average. Shipments Totaled $46 Million, 15 Per Cent Less Than the Average

By Charles A. Weinert

January M-T Sales Are Variable

In the opening month of the new year, net new orders for machine tools were either up or down, depending upon the interest of the viewer.

Compared to December results, cutting-type machine net orders were down, forming-type machine orders were up considerably, and orders for both types of machines combined were down 6.8 per cent.

In January, cutting machine net orders amounted to a preliminary $35.05 million. Foreign orders at $14.5 million represented a sizable portion. Domestic orders at $20.55 million were at the lowest level since November 1958.

The January cutting machine figure of $35.05 million compares with December's final figure of $47.45 million, January 1960's figure of $43.45 million, and the 1960 monthly-average of $41.9 million. It was 19 per cent below January 1960, and 16 per cent under the 1960 monthly average.

Forming machine net new orders in January are valued at a preliminary $20.1 million, including $3.65 million foreign.

The $20.1 million in January compares with $11.55 million in December, $13 million in January 1960, and $12.5 million 1960 monthly average. It was an improvement of 55 per cent over January 1960, and a gain of 61 per cent over the 1960 monthly average.

January net new orders for both types of machines totaled a preliminary $55.15 million. This combined figure compares with the $59 million final figure for December, $56.45 million for January 1960, and the $54.4 million 1960 monthly average. On a percentage basis, January 1961 was 2.3 per cent below January 1960, and 1.4 per cent above the 1960 monthly average.

With the 1960 figures now final, net new order receipts last year tally:

Metal-Cutting	$503.10 million
Metal-Forming	150.05 million
1960 Orders	$653.15 million

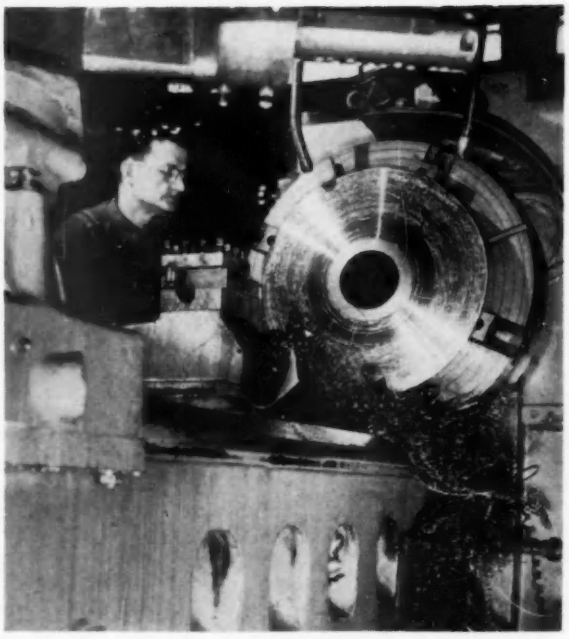
As indicated in AI of February 15—1959 net orders for both types of machines amounted to $658.95 million. In 1958 the total was $374.3 million.

Shipments of cutting-type machines in January amounted to a preliminary $37.25 million—an increase of 1.4 per cent over January 1960, but 12 per cent below the 1960 monthly average of $42.3 million. Final figure for the month of December is $48.6 million.

Shipments in January of forming-type machines are given as $8.6 million, 11 per cent less than January 1960 shipments ($9.65 million), and 28 per cent less than the 1960 monthly average of $12 million. December's final figure is $12.75 million.

Combined shipments, both types of machines, totaled $45.85 million preliminary, in January. The comparable figures for 1960's January and monthly-average are respectively $46.4 million and $54.3 mil-

Heavy Metal Removal is Commonplace Here



Metal removal at heavy rates is apparently not unusual at Cann & Saul Co., Royersford, Pa., where large open-die forgings are machined to size in a jiffy. Cuts up to one inch deep at 300 sfpm are said to be commonplace; and in some cases as much as 80 lb of metal is rough-turned from a forging in only three minutes. Warner & Swasey turret lathes, combined with multiple carbide tooling, perform the work. Pictured is a machining job on a heavy alloy-steel gear rim forging.

lion. January 1961's volume was 15 per cent less than the 1960 monthly average. The December final total is now $61.35 million.

Final values on 1960 machine tool shipments are:

Metal-Cutting	$507.55 million
Metal-Forming	144.25 million
1960 Shipments ..	$651.80 million

The 1959 total was $538.15 million; while shipments in 1958 totaled $519.9 million.

These latest dollar-volume figures were compiled and reported by the National Machine Tool Builders' Association.

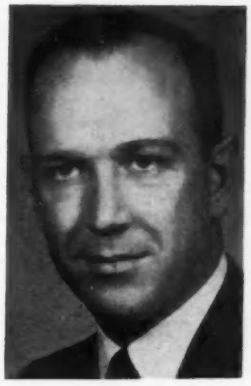
Sifco and Ex-Cell-O Join on Electrolytic Shaping

The Steel Improvement & Forge Co. and Ex-Cell-O Corp. have concluded an agreement whereby the latter is granted exclusive rights to build and market within the U. S. and Canada new metalworking machines utilizing Steel Improvement's electro-chemical processes.

Under the terms of the licensing agreement, Steel Improvement will handle the making and marketing of electrolytic solutions used in the metal-removing method. It will also continue research and development on the chemical processes involved.

In the new metal-removing process (see AI of December 1, page 60), the parts to be machined and the shaped electrodes are placed in a chamber through which a chemical solution flows. An electric current, passing through the fluid from the workpiece to the electrodes, removes the metal.

Meet the AI By-Liners



A brief biographical sketch of the editors and contributors to AI whose by-lines appear regularly

Introducing James Dunne

JAMES DUNNE, Detroit Regional News Editor, is the newest member of the AI team. He joined AUTOMOTIVE INDUSTRIES last month. His initial efforts in reporting the latest news from the Motor City appear in the "News" and "News Features" section of this issue.

A native Detroiter, Jim has worked in various branches of the automotive industries for the past decade. His broad experience includes sales engineering on heavy building-construction equipment — power-shovels, tractors, loaders, cranes, etc. More recently he held the position of engineering manual and specifications writer for Chrysler Missile Division.

A graduate of the University of Detroit, Jim holds a BS degree in industrial management. He also has certificates of credit for completing courses in mechanical engineering at the University of Detroit, and in ballistic missile electronics at the Chrysler Missile Electronics School.

Jim served for two years with the U. S. Army, and graduated from the Infantry Intelligence and Operations School at Fort Benning, Ga., reaching the rank of sergeant. He took special training courses at Fort Benning, and at Eglin AFB, Fla.—completing his hitch at Camp Hale in the Colorado Rockies.

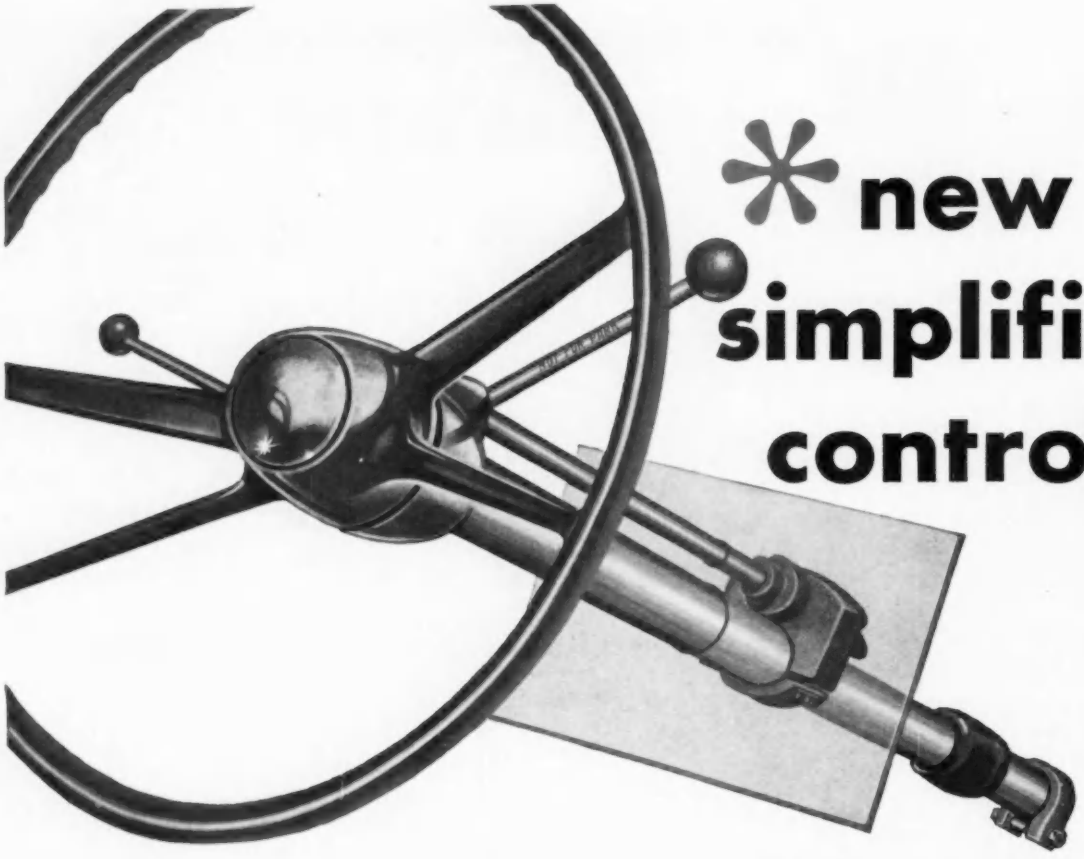
A past member of the Society of Technical Writers and Editors, his hobbies include reading, fishing, and expanding his collection of hi-fi recordings. With his wife and three daughters he resides in Birmingham, Mich.

Bryant Grinding Machines Diverted from the USSR

In a ruling made effective early this month, the U. S. Dept. of Commerce permanently revoked an export license granted Bryant Chucking Grinder Co. months ago. The license covered shipment of 35 Bryant Model B Centalign internal grinding machines to the Soviet Union. These machines are of the mass-production type for grinding ball tracks in outer rings of precision miniature ball bearings. Present plans call for their purchase, instead, by the U. S. Dept. of Defense.

The ruling was made in accordance with recommendations contained in a report of investigation conducted by the Senate Subcommittee on Internal Security. In essence, the report indicated that the Bryant machine, world-wide, was unique in its field, and that shipment of the machines to the USSR would not be in the interests of national defense.

(*Turn to page* 327, *please*)



* new simplified controls

FOR AIR BRAKES AND DIRECTIONAL SIGNALS

* **Simplicity** is the keynote of these new unified air brake and directional signal controls for trucks. Developed by Ross Gear with the new ICC lighting regs in mind!

Driver benefits: Precise finger-tip lever control of brakes and signals. Eliminates cab clutter and fussy plumbing. Gives driver more leg room. Helps reduce fatigue. Increases efficiency and safety.

OEM benefits: Complete unit with color keyed wiring. Cuts installation time and costs. Accurate, dependable operation. Conserves cab space. Enhances interior decor.

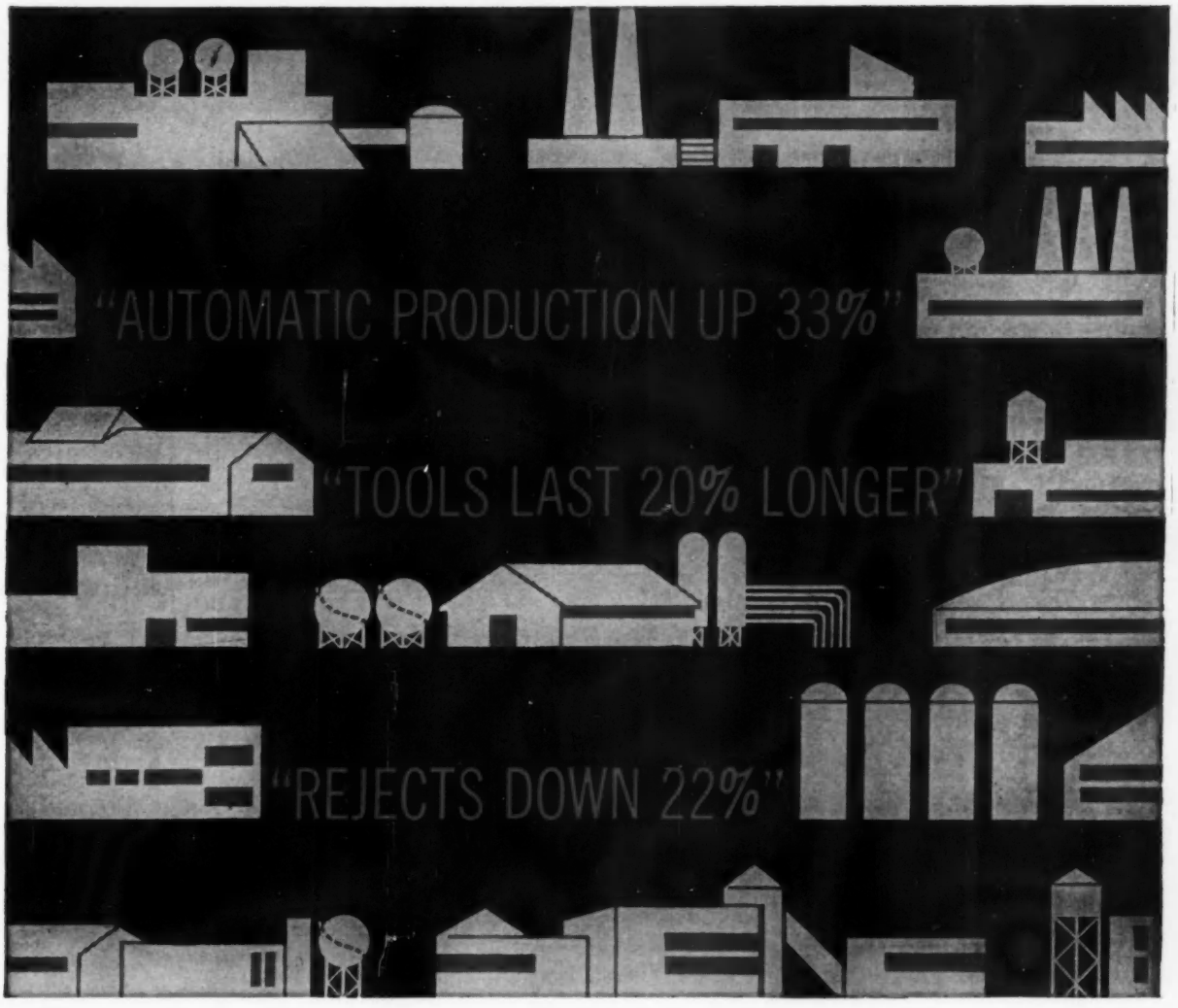
Ross invites OEM inquiries.

Ross

STEERING

ROSS GEAR & TOOL COMPANY, INC.
Ross Division, Lafayette, Indiana • Gemmer Division, Detroit, Michigan

Circle 214 on Inquiry Card for more data



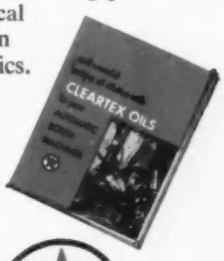
Why in the past 12 months hundreds of PLANTS HAVE SWITCHED TO CLEARTEX!

These automatic screw machine users have found that tri-purpose Cleartex has ended the problem of cutting oil dilution.

Manufacturers have found that in 7 out of 10 automatics, lube oil leaks into the cutting oil sump in spite of the most careful lubricating techniques. This diluted cutting oil can cause shortened tool life and piled-up rejects.

New Texaco Cleartex has solved the problem forever for many manufacturers. They now use Cleartex for both cutting *and* lubricating, hence the leakage that occurs no longer dilutes the cutting oil quality. The exceptional chemical stability and load-carrying ability of the Cleartex series make them equally suitable for use as cutting oils, lubricants and even hydraulic fluids.

TRY THE "CLEARTEX CURE" YOURSELF. Write today for Texaco's booklet – "Cleartex in Automatic Screw Machines." This illustrated guide will fill you in on the details, show you where you may be losing profits and how to avoid it. Or contact your local Texaco Lubrication Engineer for an authoritative study of your automatics. Just call the nearest of the more than 2,300 Texaco Distributing Plants or write to:
Texaco Inc., 135 East 42nd Street, New York 17, New York.
Dept. AI-62.



TEXACO

Throughout the United States
Canada • Latin America • West Africa

Circle 215 on Inquiry Card for more data

a fel-pro gasket
progress report

new FEL-CoPRENE

new rubber gasket for cylinder head covers — solves seepage problem — has dimensional stability for perfect fit

Seepage problems resulting from improper fit, or improper resistance to fluids can be solved by the exceptional dimensional stability, conformability and sealing capacity of FEL-CoPRENE, Fel-Pro's new special formula rubber compound. Problems of size change or breakage that often occur with conventional materials are eliminated. FEL-CoPRENE fits right every time—even after months of storage. Actually costs less to use because it eliminates costly returns, needless replacements and installation problems.

FEL-CoPRENE has greater resistance to high pressure and temperatures—will not stick or tear even after prolonged high temperature operation—comes off cleanly and in one piece, and FEL-Co-PRENE is not affected by oils or mild solvents. FEL-CoPRENE is the low-cost, high-performance choice for many other applications such as: Push Rods, etc., on both diesel and gasoline engines. The exceptional resilience of FEL-CoPRENE gives it better conformability for irregular surfaces particularly common to stampings.

Information concerning production samples and complete technical data is available on request. Send us your specifications and requirements for recommendations and advantageous quotes.

FEL-PRO maintains a complete engineering service to supply your gasket needs. Write for a copy of our complete gasket material selector catalog. Felt Products Mfg. Co., 7450 N. McCormick Blvd., Skokie, Illinois.

In Detroit: 19932 Livernois Avenue
Phone: UNiversity 2-3522

FEL-PRO gaskets

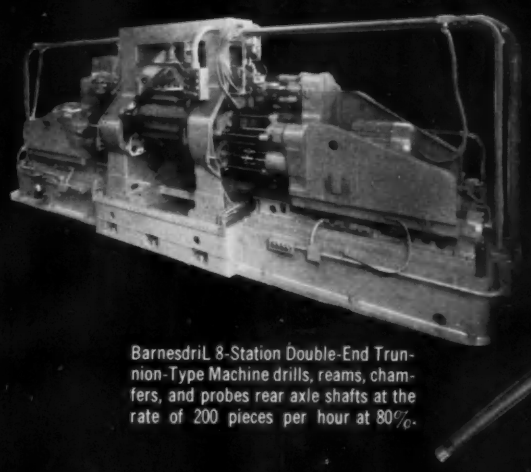
FEL-PRO

gasket specialists
since 1918.

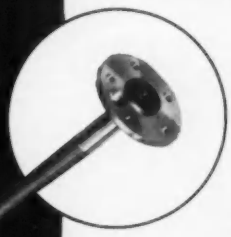
R-940D

Circle 216 on Inquiry Card for more data

AGAIN...and AGAIN...and AGAIN BARNESDRIL ENGINEERS MEET THE CHALLENGE...

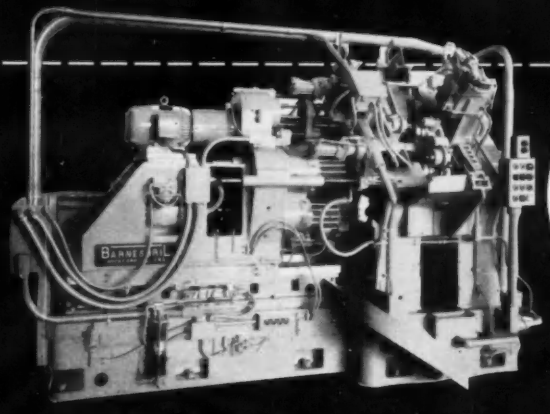


BarnesdriL 8-Station Double-End Trunnion-Type Machine drills, reams, chamfers, and probes rear axle shafts at the rate of 200 pieces per hour at 80%.

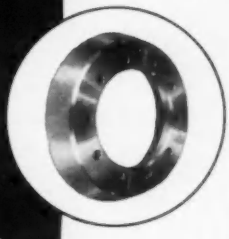


...TO SPEED PRODUCTION OF REAR AXLE SHAFTS

BarnesdriL's design improvement program led to the development of this 8-Station Trunnion-Type Machine. It produces as many rear axle shafts in one 8-hour shift as an older style Rotary Index Machine did in five 8-hour shifts.

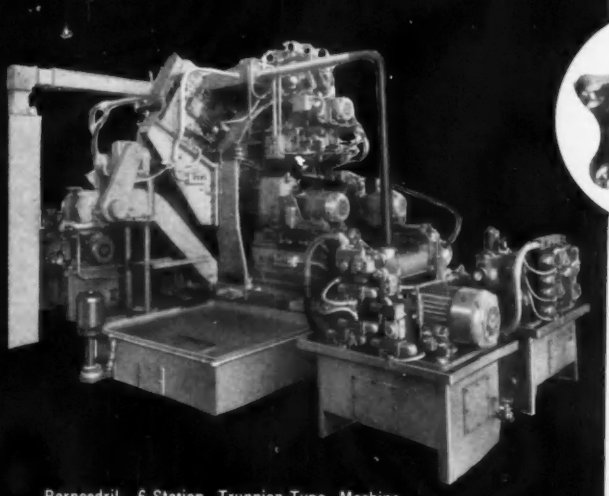


Special 8-Station Drum-Type Machine designed and built by Barnes Drill Co. for drilling, reaming, chamfering, tapping, and probing rear axle drive gears at 200 parts per hour at 80%.



...TO CUT COSTS ON REAR AXLE RING GEARS

This Drum-Type machine is a recent BarnesdriL engineering achievement to substantially increase production of ring gears for a large automobile company. Equally as important as increased production speed is the extreme tolerance accuracy and precision machining incorporated in this unit.



BarnesdriL 6-Station Trunnion-Type Machine performs drilling, threading spindle end, reaming, milling keyway, spot-facing, and probe operations on automotive steering knuckles at 208 pieces per hour at 80%.

...TO IMPROVE OUTPUT ON STEERING KNUCKLES

Another BarnesdriL Trunnion-Type Machine — a 6-Station Unit for machining steering knuckles. Application of a horizontal-type machine achieved more effective chip disposal, increased power through heavier construction, and higher speeds and feeds.

BarnesdriL's experience in designing and building special machinery is at your disposal.

Honing Machines/Production Units
Filtration Units/Drilling Machines

BARNESDRIL PRODUCTION UNITS

BARNES DRILL CO.

850 CHESTNUT STREET • ROCKFORD, ILLINOIS
DETROIT OFFICE • 13121 PURITAN AVENUE

Circle 217 on Inquiry Card for more data

No matter what type of bearing — babbitt, sintered copper-lead, aluminum — McQuay-Norris makes 'em! And from our years of experience, you can be sure of that *something extra* in quality and performance.

McQuay-Norris bearings are made to S.A.E. specifications. They are precision designed to give superior service... cooler running... better heat transfer.

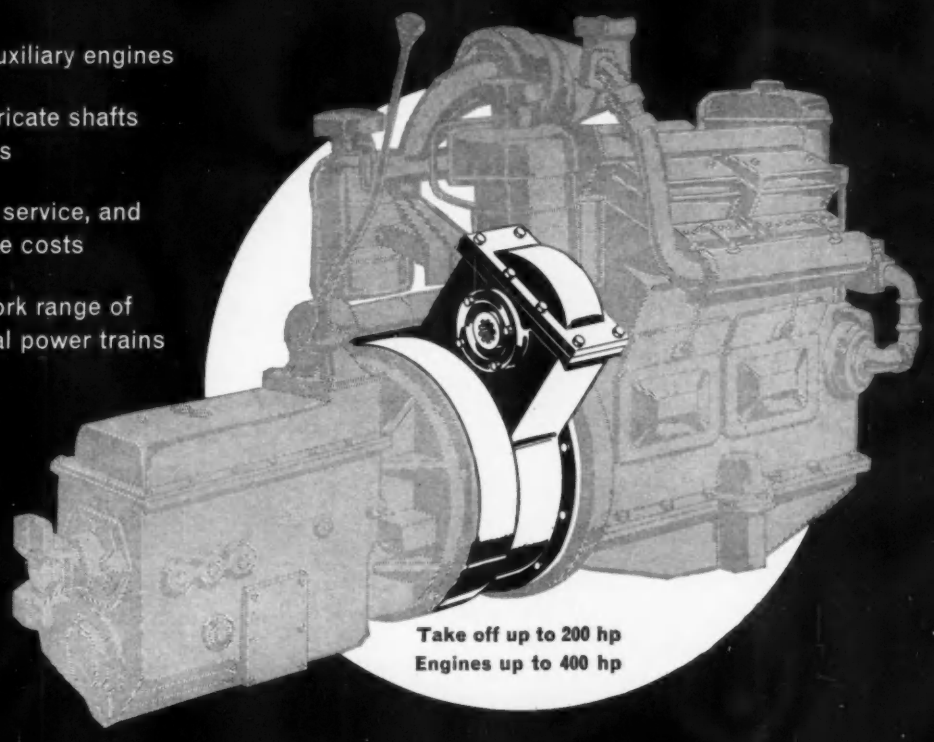
For stronger and longer bearing life, you can depend on McQuay-Norris bearings.

McQUAY-NORRIS MANUFACTURING CO., ST. LOUIS • TORONTO

Circle 218 on Inquiry Card for more data

NEW Four ways you can save with a Cotta heavy-duty flywheel power take-off

- Eliminate auxiliary engines
- Remove intricate shafts and systems
- Trim parts, service, and maintenance costs
- Increase work range of conventional power trains



Now you can take 175 to 200 hp direct from engine flywheels, boost heavy equipment productivity, *and* eliminate direct and indirect costs of conventional PTO designs.

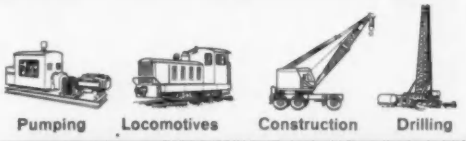
You can increase versatility of these and similar machines: heavy construction equipment, airport utility vehicles, fire trucks, generators, auxiliary hydraulic equipment, air compressors, and drills.

Simple installation fits a Cotta heavy-duty PTO between master clutch and flywheel of engines rated up to 400 hp. Even when clutch is disengaged, you can take off power at 1.24:1 ratio. Standard mounting — front and rear — with SAE No. 1 or No. 2 bell housings. Rotation at 30° increments positions unit for your specific job.

Save maintenance time and costs. Only 12¼" additional length on power train replaces auxiliary engines, shafts, joints, and couplings of conventional systems. One-piece cast housing endures heavy shock loads.

Cotta also customizes standard transmissions to individual applications . . . input torques from 150 to 2,500 ft-lb . . . single-speed, multispeed, and right-angle drives . . . variety of mountings.

For details, call Cotta (TWX-RK-7720; phone WO 4-5671) or mail coupon.



COTTA

HEAVY-DUTY TRANSMISSIONS

Cotta Transmission Co., Rockford, Illinois

Please send details on:

☐ New Cotta Flywheel Power Take-off

☐ Standard Cotta Transmissions customized to each application

Name_____

Title_____

Company_____

Address_____

City_____ Zone____ State_____

Circle 219 on Inquiry Card for more data

HEADQUARTERS

for tough valve gear problems

When you're facing difficult problems involving valve gear, the men to see are Chicago's tappet engineers. For, in 25 years of specialization on valve train parts, we have encountered and solved many problems similar to yours.

Applications, such as those illustrated, are typical examples . . . and the operational records established by Chicago tappets of all types in more than 25,000,000 engines are the best testimonial to their success in meeting the toughest industry requirements.

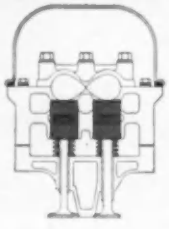
Even when your engine does not present unique requirements in valve gear design, checking with Chicago can often assure a performance bonus. Chicago's hydraulic tappets, for example, assure longer trouble-free life, reduced starting noise, and quieter operation.

For Any Engine

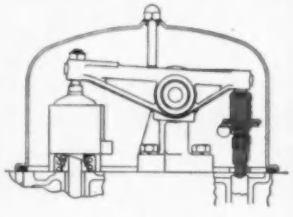
Car, truck, tractor, diesel . . . aircraft, outboard, power mower, or industrial . . . whatever your type of engine, big or small . . . it will pay you to consult Chicago's development engineers *while you are still in the preliminary design stages.*

Write or wire our Tappet Division today

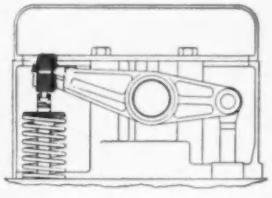
Hydraulic and Mechanical Tappets (Barrel or Mushroom Type) of Alloy Steel, Hardened Alloy Cast Iron, Chilled Iron, or Alloy Chilled Iron • Push Rods • Adjusting Screws



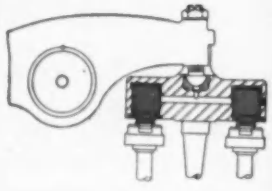
Hydraulic Inverted Cup Type Unit



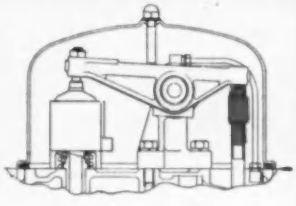
Push Rod Type with Compression Release Application



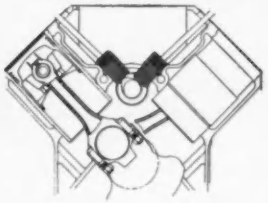
Threaded Type Rocker Arm Unit



Dual Valve T-Bridge Hydraulic Application



Hydraulic Unit on End of Push Rod



V-8 Automotive Hydraulic Tappet Application

THE CHICAGO SCREW COMPANY

ESTABLISHED 1872 • DIVISION OF STANDARD SCREW COMPANY

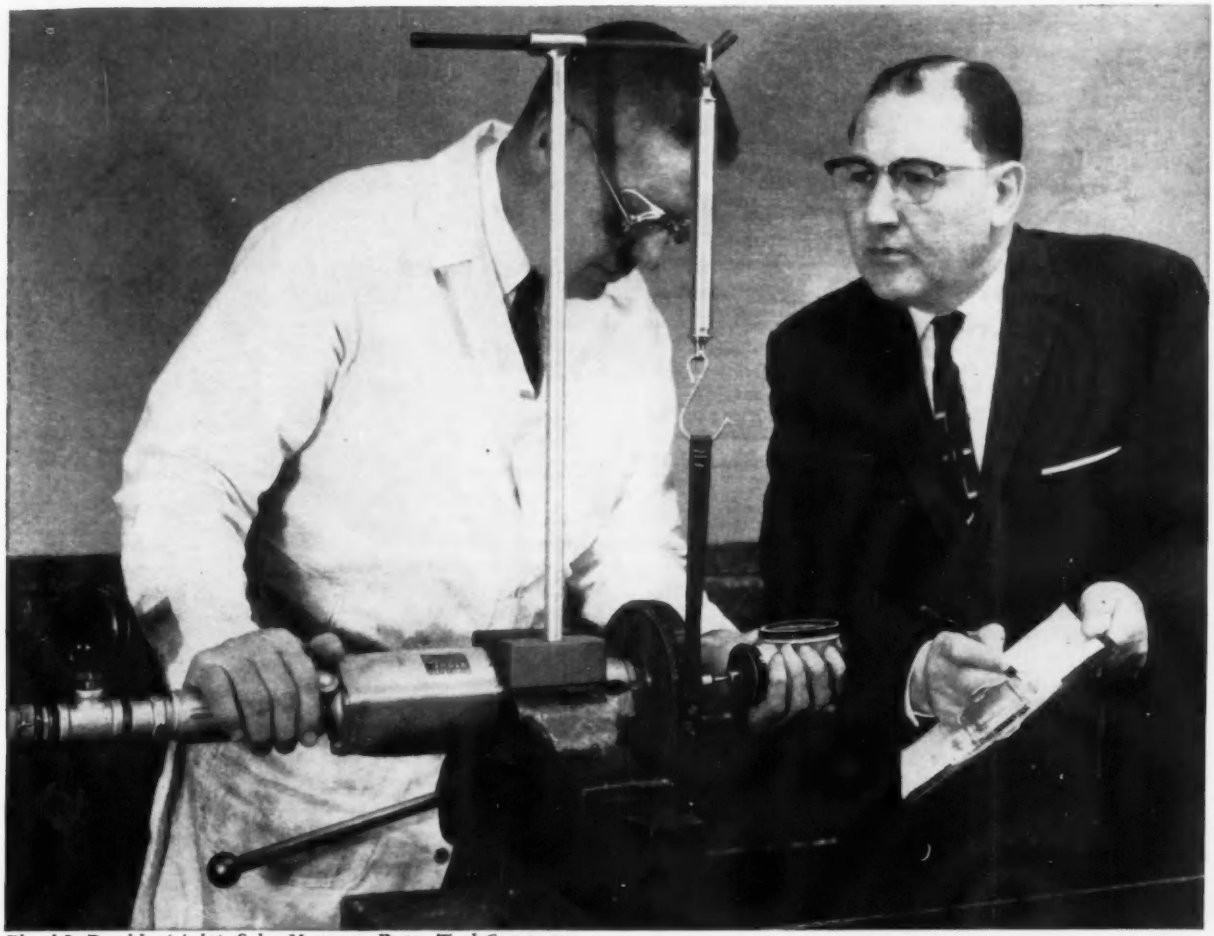
2701 WASHINGTON BOULEVARD, BELLWOOD, ILLINOIS

NEW WAY TO TEST YOUR PRODUCTIVITY

Now, Rotor Field Engineers can come into your plant and give you a far more complete testing of your air grinder productivity.

The new Rotor Portable Tool Comparator shown in use, measures efficiency under load conditions. Hence, it permits a far more practical appraisal of your productivity. This new method gives factual data for decision to repair or replace existing tools and whether new tools will pay for themselves.

Your Rotor Field Engineer will bring a Comparator Kit into your shop for a productivity test of your air grinders, or show you how to do this yourself. Write for your "Portable Tool Productivity Analysis". There is no obligation. The Rotor Tool Company, 26300 Lakeland Avenue, Cleveland 32, Ohio.



Floyd L. Paschke (right), Sales Manager, Rotor Tool Company, demonstrating use of the Comparator.

Is your grinding productivity up to PAR?

ROTOR TOOLS®

The Rotor Tool Company · Cleveland, Ohio

SUBSIDIARY OF THE COOPER-BESSEMER CORPORATION

ROTOR AIR TOOLS: Assembly Tools • Drills • Small Wheel Grinders Straight Grinders • Vertical Grinders • Scalers • Chippers • Rammers Special Tools • Air Motors

ROTOR HIGH-CYCLE ELECTRIC TOOLS: Grinders • Polishers • Sanders

NEW PRODUCTION and PLANT EQUIPMENT

By C. J. Kelly
ASSISTANT EDITOR

FOR ADDITIONAL INFORMATION, please use reply card at back of issue

Hydraulic Presses

SHORT run production work or prototype units that require only a few holes can be applied to a new line of hydraulic presses which were developed for quick tooling change. A main feature of the line is the elimination of mechanical maintenance problems since it has only one moving part—the ram.

The operator has full control over the ram making it possible for him to inch it up or down for precise positioning. Numerous shaped holes can be punched along with shearing, notching, forming and cutting off operations. *W. A. Whitney Mfg. Co.*

Circle 35 on Inquiry Card for more data

Electronic Tracer

A NEW economical tracer, well suited for cutting work of a nonrepetitive type, has been marketed.

Designated Aircotron model "J" electronic tracer, the unit uses templates prepared by conventional drafting methods, cutting costs of the templates and finished work. Customer advantages of stepless cutting speed control and tracing of 90 deg corners without the need of a corner radii are provided. The unit can also be used for chain cutting.

The unit consists of several parts, namely scanning head and control, control panel mounting bracket and raise-lower device. The last is available in two types, a manual and an electrical unit.

The Aircotron model "J" uses a small light-sensitive element located in the scanning head to follow the template line of the part to be cut. Width of the line must be maintained between 0.020 and 0.040 in. The tracer is not affected by extraneous light.

The tracer head is mounted on the operating bar of the cutting machine and automatically provides the desired motion of the torches during the cutting operation. It has a cutting range speed from 5 to 24 in. and uses 115 volt, 50 cycle single-phase current at 5 amperes. Higher or lower speeds can be obtained by substituting an appropriate drive motor. Such motors are available on request. *Air Reduction Sales Co., a Div. of the Air Reduction Co., Inc.*

Circle 36 on Inquiry Card for more data

Die Casting Machine

MODEL 1502, a 150 ton locking pressure die casting machine, features new improvements to increase its production capacity. A new hydraulic combination pump delivers 21.8 gallons per minute and the unit will complete 1300 free cycles per hour. This is at a rate of one cycle every 2.8 seconds. The 1502 incorporates valving which allows the regulation of pressure between the clamping cylinder and the shot cylinder to be isolated from each other. The manufacturer claims this unit to be the fastest acting machine of its type made in America.

The safety shot die interlock has also been re-designed for greater safety to operators from molten metal dangers. *American Die Casting Machinery Co.*

Circle 37 on Inquiry Card for more data

Automatic Equipment to Test Automotive Components

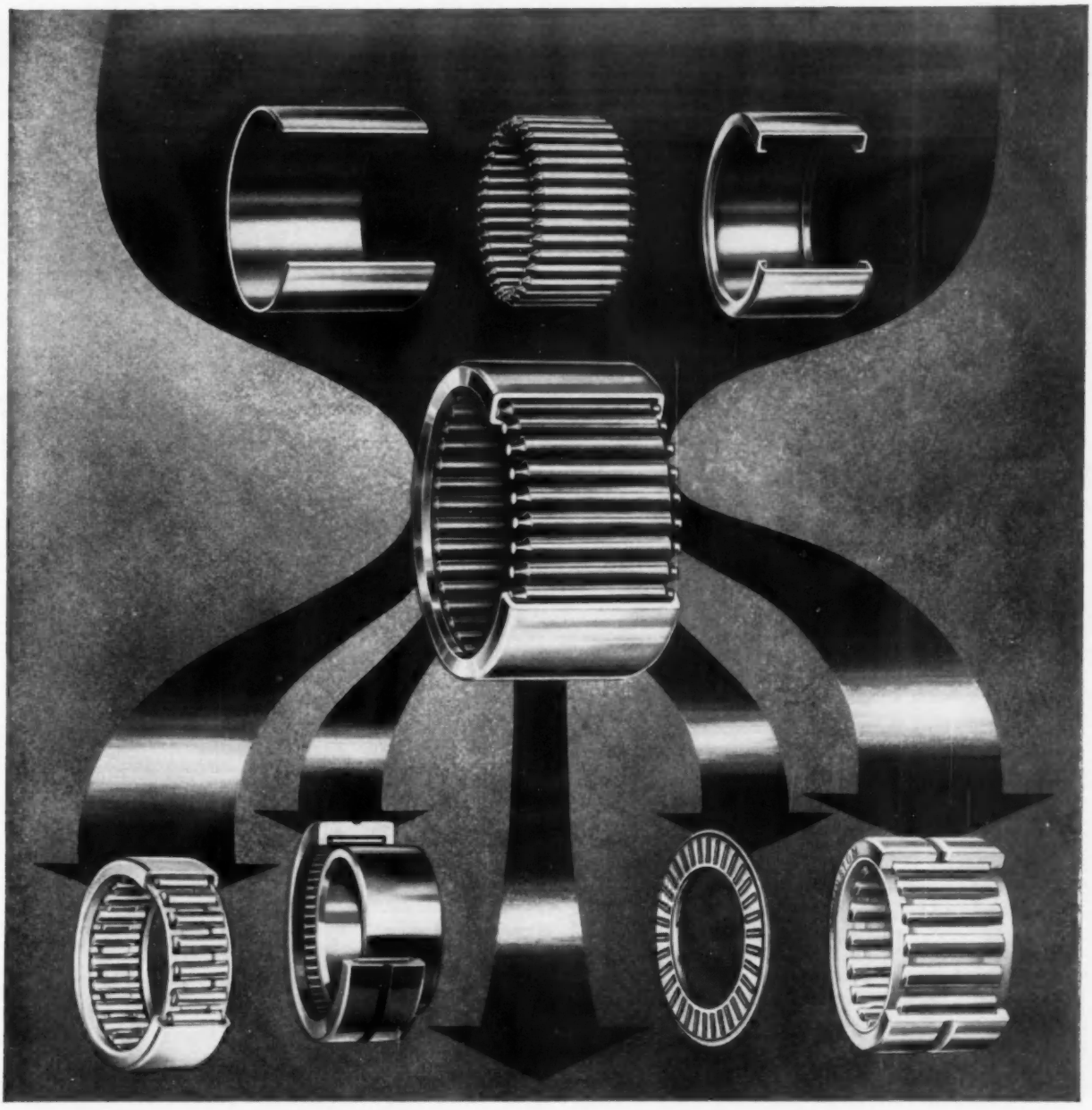
INSPECTION equipment has been developed to provide speed, accuracy and reliability in automatic testing. Numerous complex test operations can be performed with a minimum of preparation. For example, one of the test stands automatically performs nine different tests on a power steering valve in 15 seconds. According to Bendix, the same tests performed manually would take 15 minutes.

The wide range of support equipment for the automotive industry includes units for use in inspection and development of pneumatic, hydraulic, electrical and mechanical components.

The test equipment is available in three ranges of complexity and cost: Simplified, low cost units for field use; precision manual units for use in research and development or in the receiving inspection departments of automotive manufacture; and fully automatic models for production inspection. *Bendix Products Div., Bendix Corp.*

Circle 38 on Inquiry Card for more data

This new equipment for testing automotive components was displayed in the Bendix booth at the SAE exposition. Recognizing the need for more support equipment, Bendix Corp. recently organized a special section to design, build and market these units as a separate line.



PROGRESS REPORT. . .TORRINGTON NEEDLE BEARINGS

A drawn cup, a full complement of small diameter rollers, a turned lip – these simple elements of the Torrington Needle Bearings have made invaluable contributions to the improvement of countless products in simplicity, economy and reliability.

And from these basic elements, Torrington has evolved other types to meet modern engineering demands. Add an ingenious stamped steel retainer, and you have the new Drawn Cup Roller Bearing, a refinement especially suited to extreme speeds or once-a-lifetime lubrication. Thicken and carburize the race, and you have the new Heavy Duty Roller Bearing with its exceptional shock resistance. Take the small rollers, sandwich them between two interlocking disc-like retainers, and there is the new Needle Thrust Bearing, anti-friction companion in compactness and economy to the Radial Needle Bearing.

These are only a few of the recent developments in Torrington Bearings and are typical of Torrington's continuing efforts to improve bearings in design, material and performance.

THE TORRINGTON COMPANY

Torrington, Conn. • South Bend 21, Ind.

RESEARCH FOR PROGRESS IN BEARING DESIGN AND PERFORMANCE

Circle 222 on Inquiry Card for more data

NEW PRODUCTION and PLANT EQUIPMENT

Punch and Die Sharpener

ANNOUNCEMENT of a new, economical punch and die sharpener has been made. This new, portable bench type grinder is equipped with a built-in universal fixture to provide an economical method for sharpening punches and dies.

This device, known as the Unipunch Universal, accepts most makes and types of standard and special punches and dies. *Punch Products Corp.*

Circle 39 on Inquiry Card for more data

Electric Furnace

FEATURING a new horizontal cylindrical muffle with complete atmosphere lock ahead of the cooling section, a hydrogen atmosphere furnace has been designed for bright heat treating of the new aircraft and missile steels and stainless steels.

It can also be employed in stainless brazing operations. Capable of a maximum temperature of 2100 deg F, the unit is electrically heated and has an accelerated atmosphere quench.

There is also a unique heat exchanger built into the atmosphere quench chamber. Utilization of special snake-chain mechanisms for loading and unloading the charge from heating and cooling chambers permits operation with a minimum of vibration.

The operation is automatic. Once the sequence timers are set, the operator merely presses a button to send the work through the purging, heating and cooling atmosphere cycles. *Lindberg Engineering Co.*

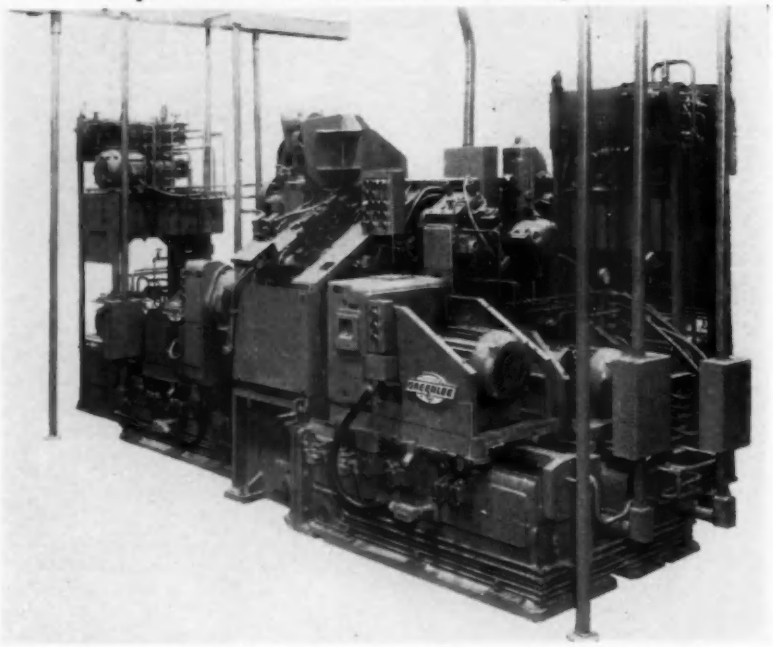
Circle 40 on Inquiry Card for more data

Abrasive Belt Units

A FULL line of abrasive belt swing frame grinders is now available in 20 standard models. Four basic designs provide the 20 models. By changing the mountings, accessories and modifications, almost unlimited combinations are possible to meet any need. The units are available from 2 hp up, with air or spring tension. Belt sizes range 2 to 6 in. wide, and 72 through 132 in. long. *Grinding and Polishing Machinery Corp.*

Circle 44 on Inquiry Card for more data

4-Way, 4-Station Automatic Indexing Machine



Capable of producing 660 machined cast iron cylinders per hour at 80 pct efficiency, this new four-way, four-station horizontal indexing machine processes four cylinders in 17.4 seconds. Four pieces are power clamped in station one and move through the complete operation in a fraction of a minute. The machine has two hydraulic control centers. Greenlee Bros. & Co.

Circle 41 on Inquiry Card for more data

Tracer Lathe

THE HB-575 is the designation given a new tracer lathe which is powered by a 12 hp motor and a multiple V belt drive and equipped with a taper attachment and/or a copying attachment. The unit was designed for precision operation with all shafts mounted on anti-friction bearings and equipped with four way tool turrets which are accurate to 0.0005 in. The lead and cross feed screws are ground for accuracy and smooth performance. All moving parts are automatically lubricated. *Cazeneuve Lathes, Inc.*

Circle 43 on Inquiry Card for more data

Indexing Table

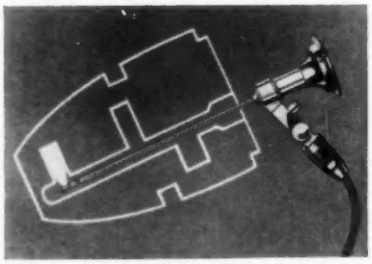
A ROTARY indexing table has been designed to provide an accuracy within ¼ second of arc (equivalent to 12 millionths of an in. at 20 in. dia.) Designed for small work, the new table top and base have 360 ground and lapped teeth each.

As a rotary indexing table it is suitable for inspection or machining operations since the sealed design permits its use with coolants or lubricants. The top of the device is flat and parallel within 0.000050 in., and has radially dispersed holes for the attachment of fixtures or workpieces. The overall dimensions including the base are 8 in. high by 9 in. wide by 9⅞ in. deep. *Michigan Tool Co.*

Circle 42 on Inquiry Card for more data

Small Bore Inspection

COMPLETE inspection of very small bores is possible with a new boroscope. The device has a shaft length of 4 11/16 in. and a shaft diameter of 0.145 in. It can be employed where no other method of inspection is possible. Right angle



vision is provided through a lens system of high optical efficiency which produces a magnified image that is clear, corrected and sharply defined. Power is supplied from a battery handle or transformer. *Welch Allyn, Inc.*

Circle 45 on Inquiry Card for more data

(*Turn to page* 303, *please*)

Next time your part needs special protection look to treated felts

its live fibres combine nature's best with the laboratory's latest...

They repel water, stop rust, reduce friction, resist abrasion, stand 300° F. heat or −65° F. cold. Hard or soft, their wondrous interlocking fibers go on flexing, filtering, wicking or wiping long after other materials break down.

For big products and small, Western Felt has specialists in coated and impregnated felts ready to assist you.

Write for our free sample brochure of Treated Felts.

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MANUFACTURERS AND CUTTERS OF WOOL FELTS AND SYNTHETIC RUBBER

NEW SUPER-TOUGH ORE HAULER USES

N-A-XTRA

HIGH-STRENGTH STEEL

TO CUT DEAD WEIGHT AND STRETCH PAYLOAD CAPACITY

This Lectra Haul M-55, made by Unit Rig and Equipment Co. of Tulsa, is now working in the open pit iron mines in Minnesota's Mesabi range. In bone-freezing —40° weather, it can stand up to the shuddering shock of 55 tons of drop-loaded iron ore, climb a 6% grade at 8.6 mph then dump those 55 tons in a crashing, grinding 18 seconds. The quarry body that takes this loading impact and dumping abrasion in sub-zero temperatures is made of N-A-XTRA high-strength steel, with X-A-R Abrasion Resistant Steel for extra hardness and toughness in wear areas. N-A-XTRA also forms the structural members of the complete unit.

Why N-A-XTRA? Because, pound for pound, it's nearly three times stronger than ordinary steel. That means it's strong enough to absorb severe punishment without constant maintenance, and light enough to handle the highest possible payload. In fact, the Lectra Haul payload is almost as much as the net vehicle weight itself.

N-A-XTRA and X-A-R are doing the job where only the strongest steels will do. Easily formed and welded, they are making products stronger, lighter, longer lasting. N-A-XTRA fully quenched and tempered steel is available in four levels of minimum yield strengths, from 80,000 to 110,000 psi. X-A-R steels are supplied in hardnesses from 360 to 400 BHN (or, by agreement, in a range between 265 and 500 Brinell). For full technical information, write Great Lakes Steel Corporation, Product Development, Dept. AI-1, P.O. Box 7310, Detroit 2, Michigan.

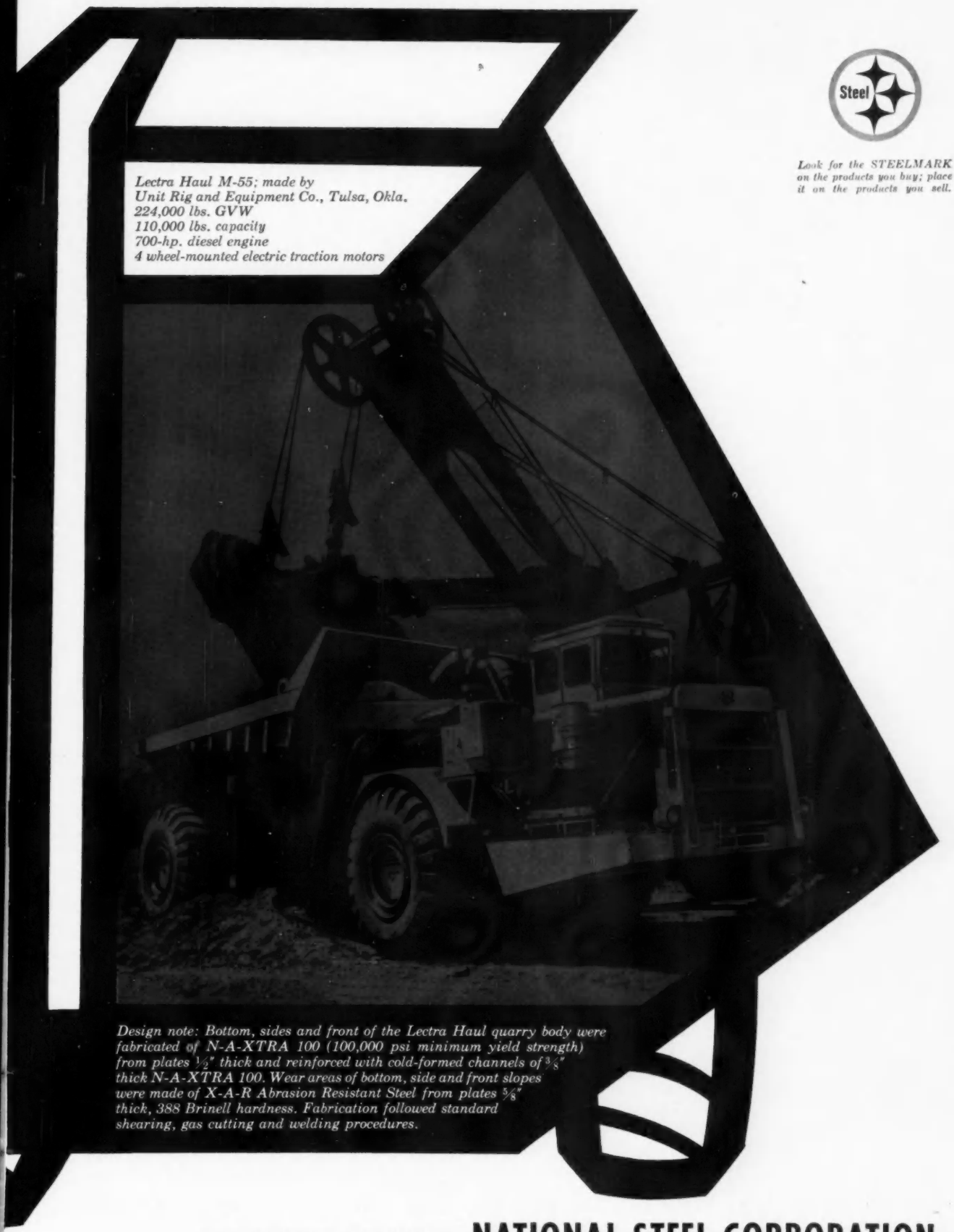
A PRODUCT OF

GREAT LAKES STEEL

Detroit 29, Michigan

N-A-XTRA AND X-A-R STEELS ARE AVAILABLE AT THESE STEEL SERVICE CENTERS

Benedict-Miller, Inc. Lyndhurst, New Jersey	Joseph Demsey Co. Cleveland, Ohio	Ducommun Metals & Supply Co. Los Angeles, California
Interstate Steel Co. Evanston, Illinois	Lockhart Iron & Steel Co. Pittsburgh, Pennsylvania	Marsh Steel & Aluminum Co. Kansas City, Missouri
O'Neal Steel, Inc. Birmingham, Alabama	Salt Lake Hardware Co. Salt Lake City, Utah	A. C. Leslie & Company, Ltd. Montreal, Canada



Lectra Haul M-55; made by
Unit Rig and Equipment Co., Tulsa, Okla.
224,000 lbs. GVW
110,000 lbs. capacity
700-hp. diesel engine
4 wheel-mounted electric traction motors

Design note: Bottom, sides and front of the Lectra Haul quarry body were fabricated of N-A-XTRA 100 (100,000 psi minimum yield strength) from plates ½" thick and reinforced with cold-formed channels of ⅜" thick N-A-XTRA 100. Wear areas of bottom, side and front slopes were made of X-A-R Abrasion Resistant Steel from plates ⅝" thick, 388 Brinell hardness. Fabrication followed standard shearing, gas cutting and welding procedures.

Steel

Look for the STEELMARK on the products you buy; place it on the products you sell.

Great Lakes Steel is a Division of NATIONAL STEEL CORPORATION

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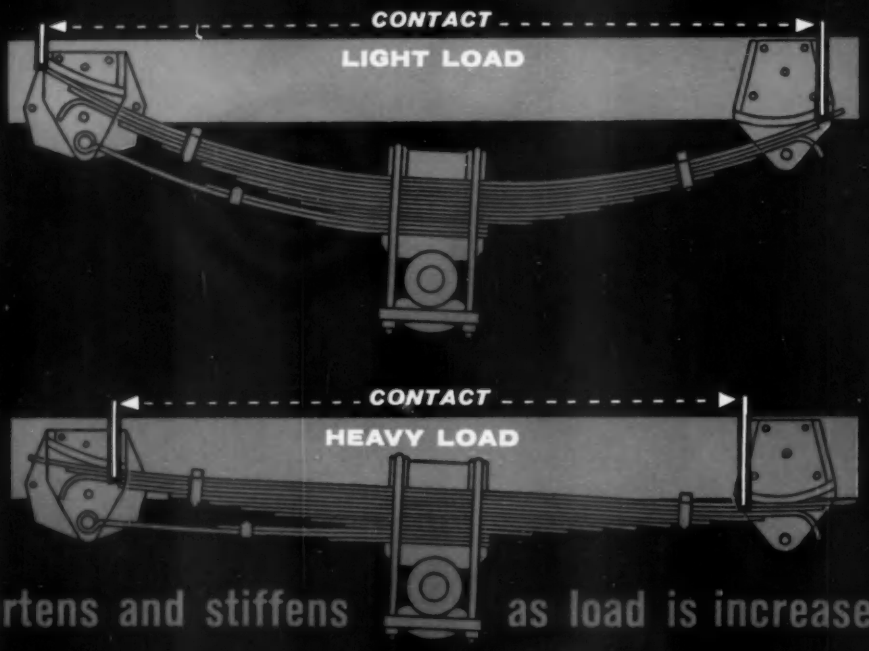
Vari-Rate

self-adjusting to loads! reduces weight...saves cost!



shortens and stiffens as load is increased!

a completely new design in truck springs, engineered by BURTON and proved in use by leading truck manufacturers

BURTON Auto Spring Corporation

WESTERN AVENUE AT 48TH STREET • CHICAGO 32, ILLINOIS

Since 1923 we have manufactured automotive springs exclusively

Circle 225 on Inquiry Card for more data

 (*Continued from page 298*)

Drilling and Tapping Machine Performs 192 Operations

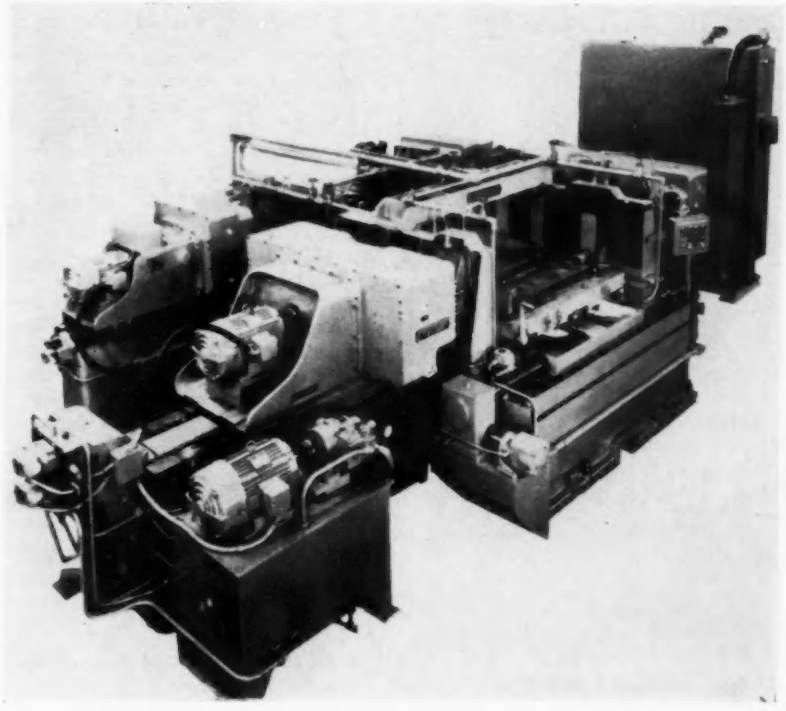
A COMPACT, Five way, Three station transfer machine with 192 spindles, drills, taps and counterbores all holes in the ends of V-12 aluminum engine crankcases. The machine features an alternate set of pick-off gears on the main drive of each spindle carrier. The pick-off gears permit easy speed change for machining either aluminum or cast-iron crankcases.

Hydraulically driven throughout, the machine employs four standard Footburt way-units, two on each side of the fixture carriage bed. These four units, with a total of 181 spindles, ride on square, hardened-steel machine ways. A fifth way-unit, mounted at the end of the fixture carriage bed employs exclusive Footburt round ways. A single control panel activates all units and the fixture carriage, either independently or in automatic sequence.

At station 1 the first units advance from left and right to drill 66 holes in the block. These tools are mounted on one side of the double-width spindle carriers. Upon retraction of units, the chain-driven transfer fixture automatically indexes to station 2, and the same units advance again to counterbore, chamfer and drill 59 holes from tools mounted on the other side of the spindle carrier. After indexing to station 3, the remaining three units advance to tap 67 holes, completing the job. The fixture carrier then retracts to the loading position at station 1.

Compact transfer machines of this type can be custom-fabricated with any number of stations, spindle-carriers, or spindles. The transfer mechanism can be programed for retraction, as above, or for through feed, to integrate with other transfer lines. Special tools can be built into any station. *The Foote-Burt Co.*

Circle 46 on Inquiry Card for more data



Positioning System

A COMPLETELY automatic, high speed positioning and programming system offers high accuracy and new cost reductions for metalworking operations. The system positions and controls machine tool work on loads as heavy as 6 tons and lengths up to 150 ft at speeds up to 150 rpm with accuracy of 1/32 in. over the full 150 ft length.

Punch cards are the programming medium for the standard units. A single card programs up to 60 selected positions and from 1 to 20 operations or processes at each position. Additional positions simply require the use of more punch cards. Positioning and programming for the entire system is done by one operator for processes previously requiring several operators.

The new Sanders position control system is easily adapted to other programming media. Punched tape, magnetic tape or computers can be fitted to the system to meet individual specifications. The system, controlled by an electrohydraulic servo valve manufactured by Sanders, virtually eliminates backlash to assure close tolerance positioning for tooling operations. The system is constructed of standard components readily adaptable to meet individual requirements. *Sanders Associates, Inc.*

Circle 47 on Inquiry Card for more data

Brazing Alloy

DESIGNATED the Nicrobraz S series, a new brazing alloy form is designed to promote speed and is applied by an air gun method for production work or by a manual syringe for prototype work. This material will be displayed at the American Welding Exposition in April. *Stainless Processing Div., Wall Colmony Corp.*

Circle 48 on Inquiry Card for more data

Bearing Take-Up Frames

NEW multi-bearing takeup frames, available in 11 stock sizes are designed to accommodate any type of bearing in any two pillow block with mounting holes up to 5/8 in. The adjustments from 6 to 24 in. and new frames allow horizontal bearing adjustments from 6 to 24 in. and will mount 143 different bearing shaft sizes from 5/8 to 2 7/16 in. dia. Mounting pads can be adjusted to the mounting holes in the pillow blocks. One pad is moved by an adjusting

Press Brake Die Book

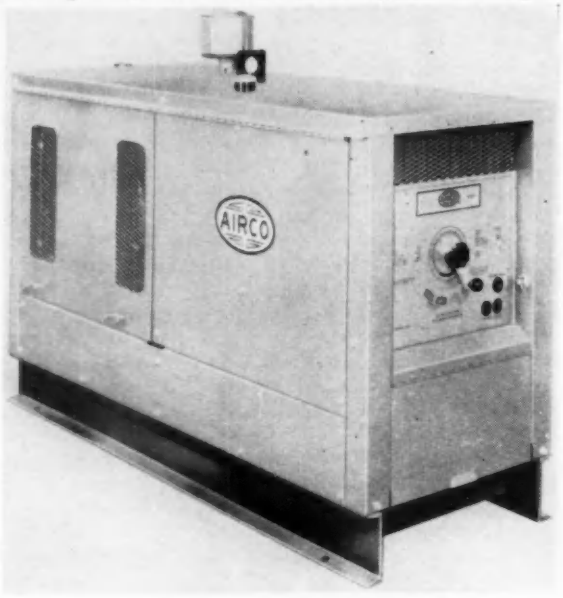
AN 11 section, 134 page book gives a comprehensive treatise on the design and application of the different bending and forming dies and punching units for press brakes. A complete table of contents and section indexes enable quick reference to dies for any particular bending, forming and punching operation. While this book carries a price of $3.00 per copy, it is available to any press brake user by request on company letterhead. Write to: *Dreis & Krump Manufacturing Co., 7400 S. Loomis Blvd., Chicago 36, Illinois.*

screw, while the other pad slides freely to the proper distance between the pillow block mounting holes. This mounting flexibility permits each size of takeup frame to accept a wide range of pillow block bore sizes. Mounting bolts are zinc plated and washers and nuts for mounting the pillow blocks are furnished with each frame.

The new, all-steel frames have strong channels that form a rugged box frame with high rigidity. Channels also protect the adjusting screw and provide easy access for lubrication and cleaning. The large diameter adjusting screw is zinc plated for maximum protection against rust. Mounting feet, formed from heavy gauge steel, have two stiffening ribs for added strength and the pillow block mounting pads are of one-piece steel welded construction. *The Link Belt Co.*

Circle 49 on Inquiry Card for more data

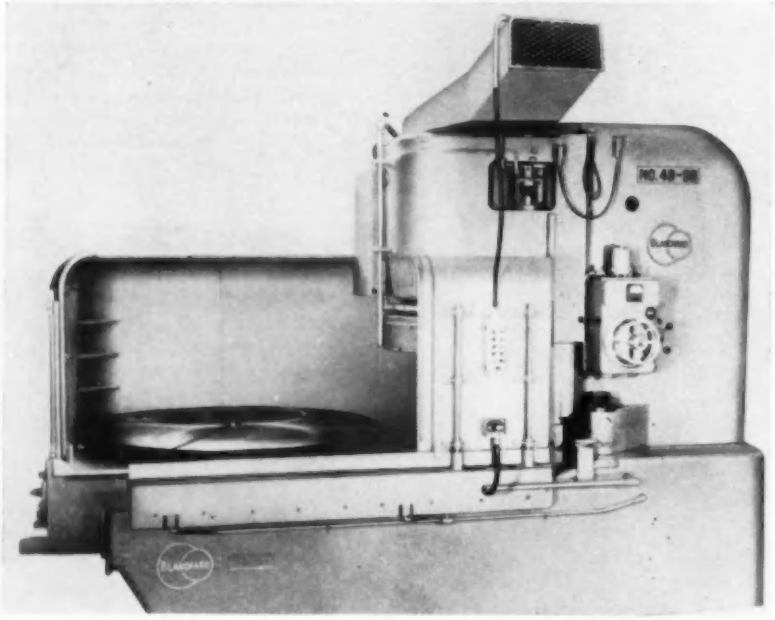
Multi-Type-Welding Machine Features Dependability



A new 225 amp AC-DC engine driven welder—powered by a Kohler engine—can handle stick electrode welding, Heliwelding and Aircomatic welding. The power source supplies amperages from as low as 15 amps to 265 amps DC and 25 to 320 amps AC. The machine is designed for jobs where dependability is essential and can be utilized as an AC power plant for applications other than welding. Air Reduction Sales Co.

Circle 50 on Inquiry Card for more data

King-Size Surface Grinder Has 108 in. Capacity



Designated number 48-96, this machine will hold workpieces up to 10,000 lbs

Circle 51 on Inquiry Card for more data

CLAIMED by the manufacturer to be the largest surface grinder available, this machine has a 96 in. diameter, full magnetic chuck, and will swing and grind to the center of work up to 108 in. in diameter. Chuck will hold a maximum work load of 10,000 lbs.

Work up to 40 in. in height can be accommodated under a new 48 in. diameter Cortland type segment wheel. The chuck completely clears the wheel when in the loading position. Base ways and guide strips for the chuck table are hardened to assure long, accurate life. Regularly supplied with 100 HP spindle motor, the new grinder is also available with motors up to 150 HP. *Blanchard Machine Co.*

Vacuum Simulator

A NEW line of low-cost vacuum simulators for functional inspection test applications is now available.

Designated Series VA, the Prenco units are designed especially for production line testing of vacuum controlled automotive components and accessories, but are suitable for testing any part whose operation is accomplished with or affected by vacuum. Any vacuum condition can be duplicated to permit functional complete-cycle testing of parts at both maximum and minimum operating limits. The self-contained motor-driven equipment eliminates the need for actual engine operation during inspection or test.

The Series VA line is available in standard units suitable for operation in applications requiring ½ to 60 cfm capacity. Larger capacity units are available on special order. *Prenco Mfg. Corp.*

Circle 52 on Inquiry Card for more data

New Tachometer

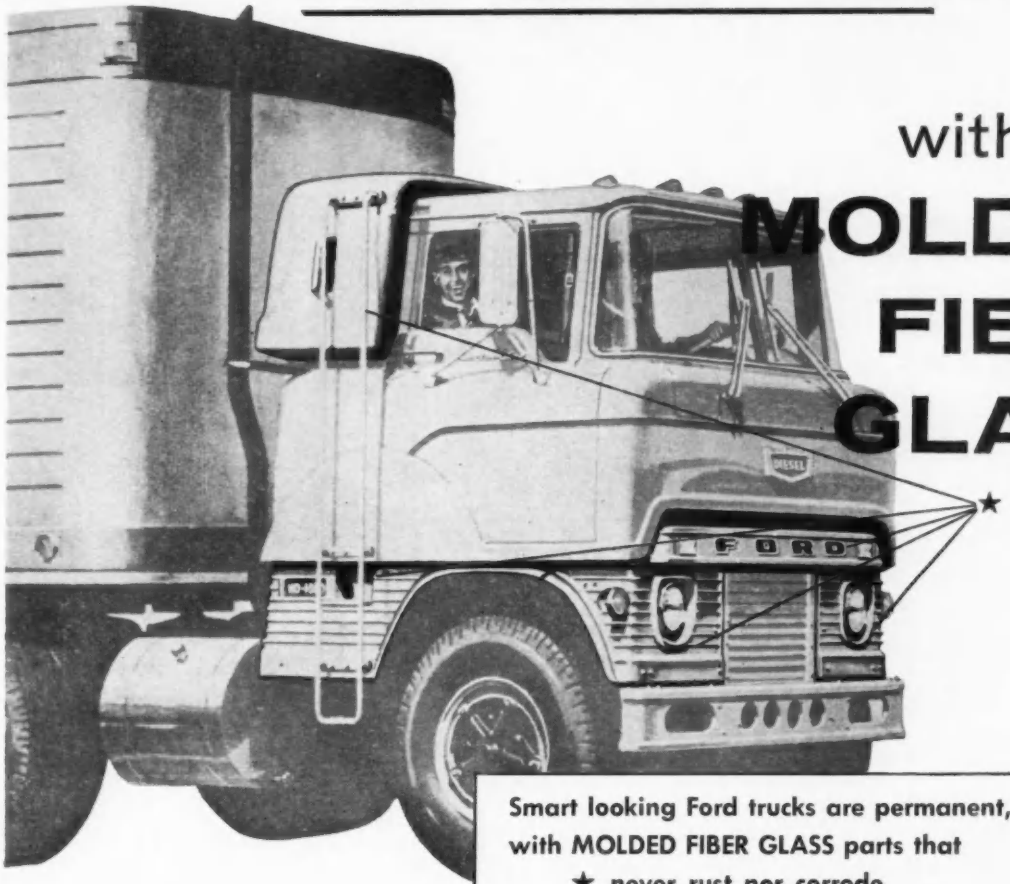
MODEL T402 is the designation given a new testing device. The metal-housed unit tests engine RPM for all inspection work, including carburetor and automatic transmission adjustment. The new tachometer is fast and easy to use on all 4, 6

(*Turn to page* 308, *please*)

FORD TRUCKS put up an even better front...

with

MOLDED FIBER GLASS



Smart looking Ford trucks are permanent, practical, with MOLDED FIBER GLASS parts that

- ★ **never rust nor corrode**
- ★ **never surrender to weather or time.**

They'll look as fresh 10 years from now as today!

Won't dent or get out of shape . . . highly resistant to impacts. (Severe blows cause local damage only, easily and quickly repaired. No distortion of adjacent parts.)

Stronger than steel, pound for pound, and 40% lighter than equivalent sheet metal. Tooling is 50% faster, at 80% less cost.

Get complete information on having *your* designs custom molded of strong, lightweight MOLDED FIBER GLASS. The secret of MFG superiority is in our exclusive matched-metal-die molding process. Ask for free literature.

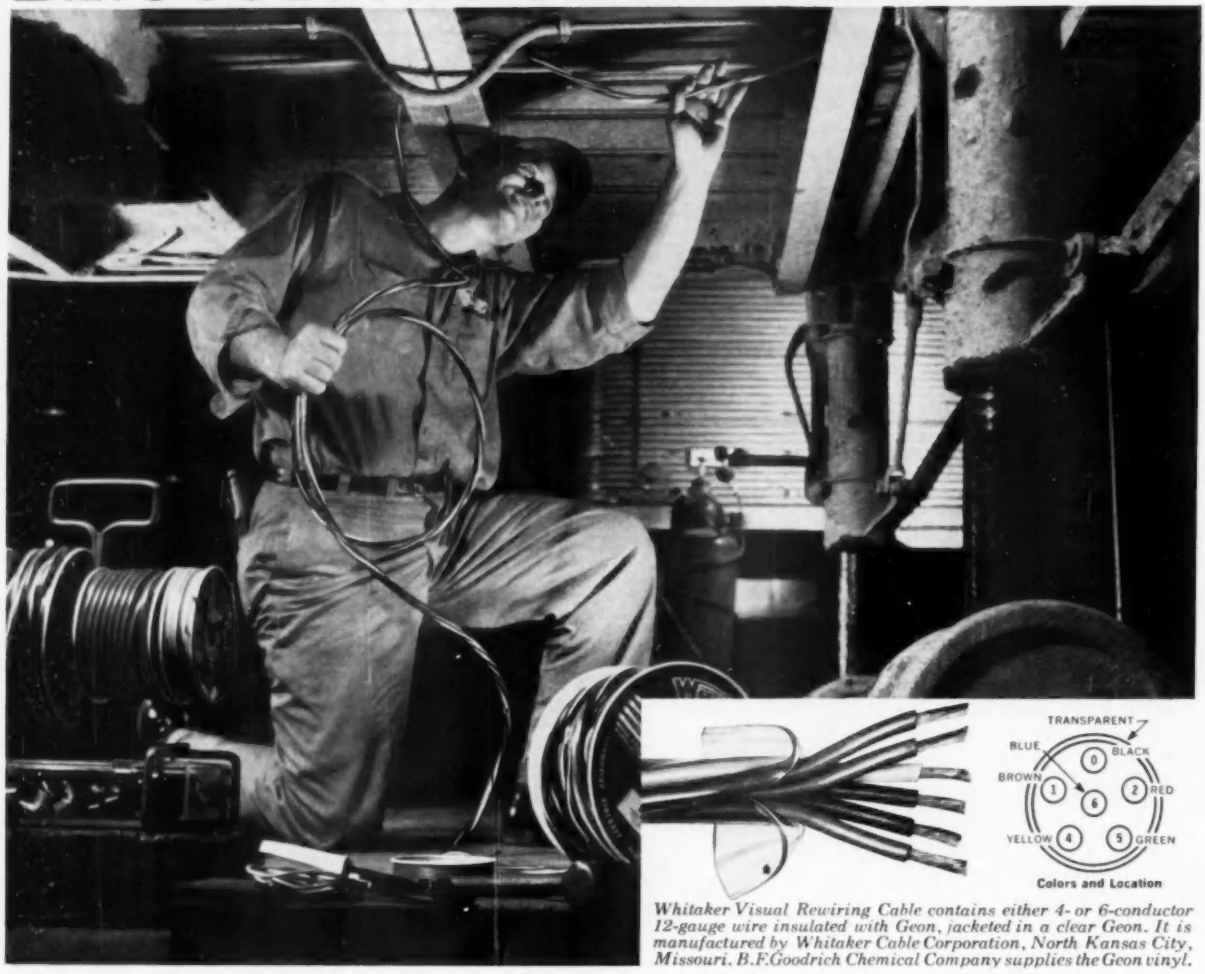
GREATEST NAME MOLDED FIBER GLASS IN REINFORCED PLASTICS

MOLDED FIBER GLASS BODY COMPANY

4611 Benefit Avenue—Ashtabula, Ohio

Another new development using

B.F.Goodrich Chemical *raw materials*



Whitaker Visual Rewiring Cable contains either 4- or 6-conductor 12-gauge wire insulated with Geon, jacketed in a clear Geon. It is manufactured by Whitaker Cable Corporation, North Kansas City, Missouri. B.F.Goodrich Chemical Company supplies the Geon vinyl.

Transparent cable jacket of Geon gives truckers see-through convenience

Designed to meet new ICC truck-trailer wiring requirements that call for higher-capacity electrical circuits, this new cable gives installers real convenience. Conductors insulated in various colors of Geon are contained in a jacket of clear Geon vinyl, so that locating wires for making connections is fast and easy.

At the same time, truckers get top quality electrical protection because Geon gives excellent dielectric properties and good resistance to abrasion, weathering and heat. It is nonflammable, has low temperature flexibility and is extremely inert to oil, chemicals and solvents. Geon retains its properties over years of service.

Here's another example of the way Geon vinyl improves products. For information, write Dept. N P - 2, B. F. Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

Geon VINYLS

B.F.Goodrich Chemical Company
a division of The B.F.Goodrich Company

B.F.Goodrich

GEON vinyls • HYCAR rubber and latex • GOOD-RITE chemicals and plasticizers

Circle 227 on Inquiry Card for more data

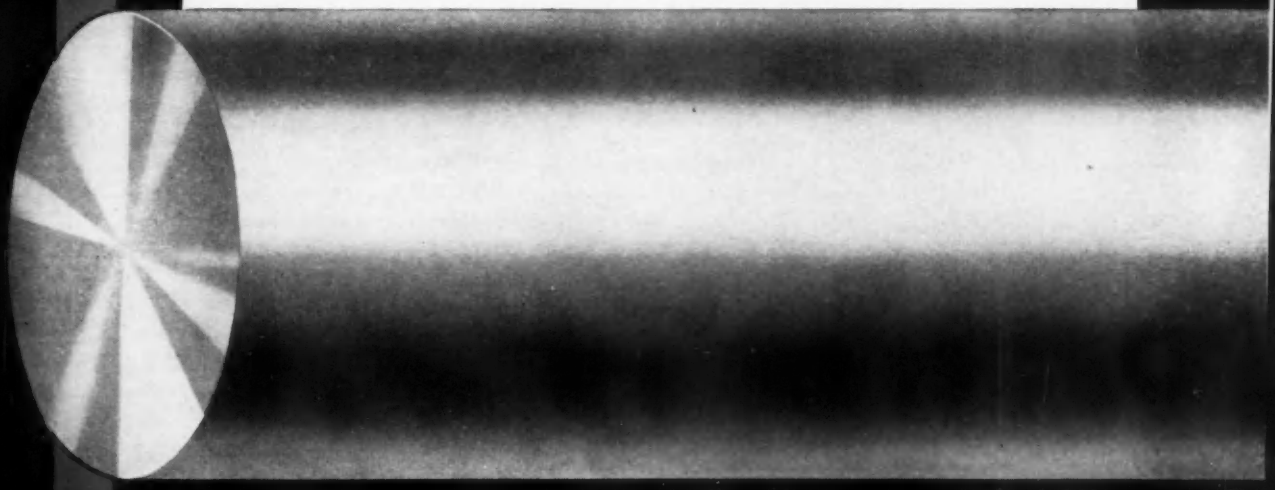
Application tested! Proved!

WHY HEAT TREAT PARTS? use e.t.d. 150

elevated temperature drawing (150,000 psi tensile)

ALLOY STEEL BARS

- **e.t.d. 150 Alloy needs no heat treating!**
- **e.t.d. 150 Alloy has 150,000 psi tensile guaranteed! (Rockwell C32 minimum)**
- **e.t.d. 150 Alloy machines better than heat treated alloy steels!**



Here are cost-reducing advantages

(1) Heat treating problems, costs (and secondary operations) are eliminated. (2) "e.t.d." 150 machines better than heat treated in-the-bar alloy steels. (3) Tool life and finish are excellent. (4) No quench cracks or distortion from heat treatment. (5) "e.t.d." 150 has exceptional strength and hardness uniformity across the bar. (6) End cost of parts is greatly reduced.

Use this coupon to request Helpful Data Bulletin 22.

La Salle STEEL CO.
1438 150th St., Hammond, Ind.

Manufacturers of STRESSPROOF®, FATIGUE-PROOF®, and a complete line of cold-finished steel bars.

Name_____

Title_____

Company_____

Address_____

City_____ Zone____ State_____

Available from your Steel Service Center

Circle 226 on Inquiry Card for more data

and 8 cylinder engines, automotive, marine or industrial engines. This new "Starflash" Tachometer features a rugged, heavy-duty case of 20-gauge, cold-roled steel, with a heavy copper-nickel-chrome plating that resists corrosion and is easy to clean. The distortion-free plastic dial cover is not affected by oil, grease and gasoline, and will not craze or etch. Special labeling diagrams easy hook-up. The tester automatically adjusts to 6 and 12 volt car systems. Two scale ranges, I-1000 and 0-5000 RPM, for 4, 6 and 8 cylinder cars, gives the user more accurate speed indications for idling and high-speed operations. *Auto-Test, Inc.*

Circle 54 on Inquiry Card for more data

Precision Balls

PRECISION balls of special materials are now available in both prototype and production quantities. Among the newer materials are: boron carbide, titanium diboride, glass-filled teflon, Indox I, irradiated polyethylene, ferrites, synthetic rubies and sapphires, tantalum, titanium carbide, and high density aluminum oxides.

Balls of these materials greatly extend the range of possible applications in cases where temperature and load extremes, corrosion resistance, magnetic or non-magnetic qualities, dielectric properties, or controlled density are of major importance.

Balls of high purity metals for research and development purposes can be furnished in a wide range of sizes, tolerances, and surface finishes. *Industrial Tectonics, Inc.*

Circle 55 on Inquiry Card for more data

7 Inch Grinder

ADVANCED safety devices plus convenient handling of odd-shaped and long stock are features of a new 7 in., ½ hp grinder. The new unit is available in both bench and pedestal models.

The unit's patented "Twin-Lite" safety shields contain double-strength, shatter-proof glass to protect the operator's eyes. Inside the shields, bayonet-type bulbs are shaded to prevent glare while illuminating the face and both sides of the wheel. Wheels are balanced to 1/10 in. oz.

Additional safety features include removable steel plates covering the sides of the wheels, adjustable spark deflectors, large (2½-in. diameter) cupped wheel flanges, and heavy cast iron guards with integral dust chutes. These chutes utilize the natural fan action of the grinding wheels, making installation of dust collectors an easy job. *Delta Power Div., Rockwell Mfg. Co.*

Circle 56 on Inquiry Card for more data

Hydraulic Clutches

POWER SHIFT hydraulic clutches, in a new line, are now available as components for a wide range of transmissions and machinery. The clutch design allows the manufacturer to tailor their equipment to individual customer requirements.

Available in six sizes, the new clutches will handle torque loads from 1000 to 10,000 lb ft; engines up to 1000 hp and speeds up to 5500 rpm. The dual-drive design gives end-to-end shifting with smooth and fast engagements. Shift and engage speed for the line is less than 0.6 second. When disengaged the clutch cavities are under constant oil pressure, furnishing sufficient lubrication to all clutch parts. In operation the oil is transferred from one cavity to another rather than filling and exhausting them. *Rockford Clutch Div., Borg-Warner Corp.*

Circle 57 on Inquiry Card for more data

Variable Speed Drive

EXCEPTIONAL compactness has resulted by incorporating a motor with a mechanical variable speed drive, manufactured by the Cleveland Worm & Gear Division, Eaton Manufacturing Company. Utilizing an integral "pancake" style motor, the new Motorized Speed Variator requires only slightly more space than an equally rated conventional motor. The new line is available in sizes from ½ to 15 HP. Motors are AC radial air gap design and conform to NEMA design "B" specifications.

The Speed Variator's design insures precise speed setting and repeatability. It provides variable output speeds with 9:1 and 6:1 ranges. Since it employs the rolling action of a series of balls, it permits smooth adjustment of the output speed while operating under load.

Power is transmitted through input shaft to a beveled drive disc in contact with axle-mounted alloy steel drive balls. Input shaft rotation causes balls to rotate about their axles, which in turn transmits power to the output shaft by a similar ball-disc contact. Output speed is determined by relative lengths of the contact paths on input and output sides of the balls. By tilting both axles and balls, relative lengths of the two contact paths are varied to give increasing or decreasing ratios. *Cleveland Worm & Gear Div., Eaton Mfg. Co.*

Circle 58 on Inquiry Card for more data

Adjustable Cut-Off Tool

AN innovation in cut off tools, known as the Manchester adjustable rake angle tool, can be set on zero or in any positive rake angle up to 16 deg. (Phantom illustration shows 0 and 16 deg settings). Rake angle settings are marked on the tool from 0 to 16 deg in multiples of 2 deg, but any angle is possible. There are no serrations in the tool to limit positioning. The point of application of cutting force is always at center regardless of angle setting and is held by a powerful locking device. A feature of the tool is that it can be adjusted to a new angle without removing it from the machine and still keeping the center location.

This tool is designed for application on all makes of turret lathes, automatics, production lathes and cut off machines. Inserts are available in various grades of carbide, high speed steel and cast alloys. The tool will be displayed at the ASTME show, Booth 3063. *Portage Double Quick, Inc.*

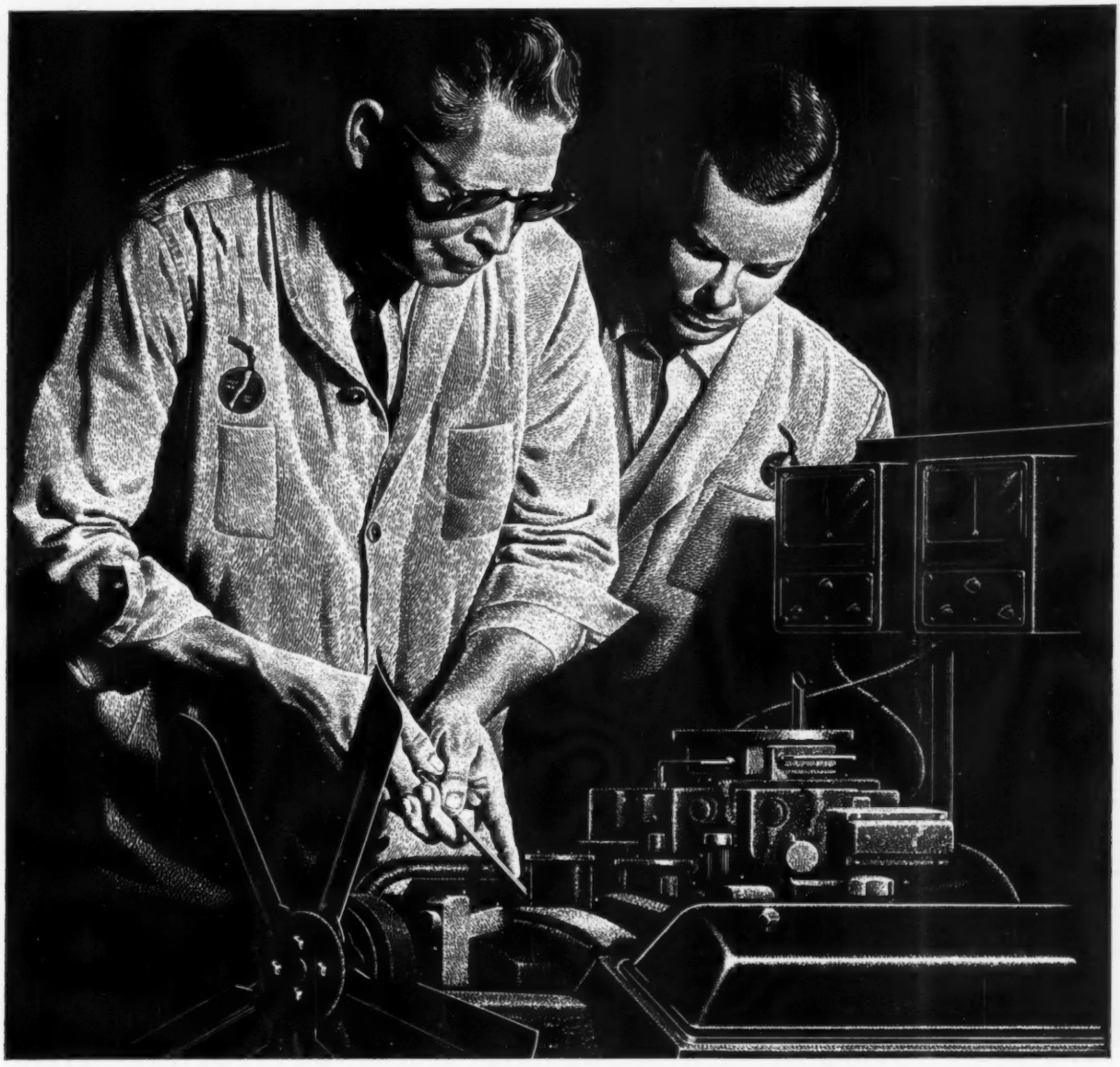
Circle 59 on Inquiry Card for more data

Chrysler Cuts Board

The Chrysler Corp. has disclosed it will reduce the number of management seats on the board of directors to be elected at the annual meeting on April 18.

Chrysler said it was slashing the number of directors from 20 to 18. Three present members of the board will not seek re-election and one was added to the slate.

If the management slate is elected, the board would comprise seven Chrysler officers, a representative of Chrysler's law firm and 10 persons outside management.



SEALED POWER... where engineering achievements result from a frame of mind

Modern manufacturing methods, even when they are backed up by rigid quality control, aren't always enough to assure product acceptance—or performance.

At Sealed Power, an intangible (call it a frame of mind, if you wish) goes hand in hand with the unerring ability to develop solutions to piston ring problems.

This frame of mind means that Sealed Power keeps pace with technological advances in engine design. It led also to Sealed Power's technical research center, finest in the piston ring industry.

Most of all, it is reflected in the achievement of Sealed Power engineers and metallurgists who developed the Stainless Steel oil ring, the ring that does its job better than it had ever been done before.

The Sealed Power Stainless Steel oil ring resists pitting and etching, holds its fit, retains tension at operating temperatures. It controls oil, resists sludge, and it cannot rust or corrode. More than 50,000,000 have been factory installed!

Progress through Profits

Sealed Power Preferred Performance

PISTONS • PISTON RINGS • SLEEVES • SLEEVE ASSEMBLIES • SEALING RINGS FOR ALL APPLICATIONS

SEALED POWER CORPORATION, MUSKEGON, MICHIGAN • ST. JOHNS, MICHIGAN • ROCHESTER, INDIANA • STRATFORD, ONTARIO • DETROIT OFFICE • 7-236 GENERAL MOTORS BUILDING • PHONE TRINITY 1-3440

Circle 228 on Inquiry Card for more data

NEW PRODUCTS AUTOMOTIVE-AVIATION

FOR ADDITIONAL INFORMATION, please use reply card at back of issue.

By C. J. Kelly
ASSISTANT EDITOR

Luster Preserving

A technique for applying paint to aluminum which retains most of the metal's reflective luster has been developed for interior trim applications. A new line of decorative trim, known as Reflective Colorweld, is now available as a result of the new technique. The product is offered in width of one to 18 in., 10 colors and three finishes—one side bright, embossed and brushed. One side bright and embossed sheet is available in a minimum gage of 0.012 in., and brushed sheet is available in a minimum gage of 0.020 in. *Reynolds Metals Co.*

Circle 61 on Inquiry Card for more data

Nylon-Rayon Tire

Two plies of nylon cord and two plies of rayon cord are used in a new tire designed to give maximum ride comfort with a reduction of vibration and extra strength, according to the manufacturer. The two plies of nylon are used on the inside while the rayon is used on the outside, under the tread. The new tire construction has been named nytex and will be available initially in the "Super Service" line. *Seiberling Rubber Co.*

Circle 62 on Inquiry Card for more data

Static Seal Material

A new material for use in high temperature, high pressure static seals is a composite of two metals whose combined properties meet the requirements for seal applications in temperatures up to 1200 deg F and pressures of 5000 psi. The composites are made by impregnating a porous body of fiber metal (or skeleton) with a soft metal. The resiliency of the fiber metal skeleton combines with the softness and conformability of the impregnant to offer a seal material for most any static high temperature-high pressure purpose.

Generally speaking, the higher the melting temperature of the metal filler, the higher the temperature a seal will withstand. When the fiber metal skeleton is impregnated with the filler, the material literally becomes a sponge within a sponge. Since both metal networks are continuous, this sponge within a sponge idea offers an optimum situation for realizing the combined properties of each. *Armour Research Foundation of Illinois Institute of Technology.*

Circle 63 on Inquiry Card for more data

Vinyl Coating

A recently introduced strippable vinyl coating eliminates marring and scratching of polished, embossed or coated metals during fabrication, storage or shipping.

This coating, known as Strip-Gard, is an organosol based on Geon vinyl manufactured by B. F. Goodrich.

Since the Geon coating is extremely flexible, metal surfaces protected by Strip-Gard can be corrugated, embossed, roll formed or drawn, in many cases without lubrication. The wear on expensive plated or polished dies is significantly reduced. In addition, there is no need for a final clean-up after fabrication or assembly.

The Geon coating protects metal surfaces from the effects of oil and grease and from discoloration or etching by corrosive chemicals. Although it is not intended for permanent protection against weathering, it will not discolor or become brittle even when exposed outdoors for periods up to six months. *B. F. Goodrich Chemical Co.*

Circle 64 on Inquiry Card for more data

Strong Two-Ply Tire

Reports from the manufacturer say a new two-ply tire has the same carcass strength as the standard four-ply type. Designed primarily for the compact cars, this newly developed tire will give softer riding and cooler running than the kind now used and will be equal in endurance and treadwear.

A quantity of samples have been shipped to automobile manufacturers for testing and evaluation. *B. F. Goodrich Tire Co.*

Circle 65 on Inquiry Card for more data

Auto Body Enamels

A new resin for producing glossy and durable automobile body enamels, that cure quickly at temperatures as low as 180 deg F, has been introduced with the trade name Resimene 872. The new material has been identified as etherified melamine formaldehyde resin solution of 50 per cent solids content in isobutanol.

The material is used with alkyd resins to make baking enamels particularly suited for finishing automobiles and other metal products where a wide range of cure schedules must be met. Enamels formulated from this development may be baked at schedules varying from 30 minutes at 180 deg F, to 10 minutes at 300 deg F with minimum gloss differential and high color retention, even when overbaked the manufacturer reported. *Plastics Div., Monsanto Chemical Co.*

Circle 66 on Inquiry Card for more data

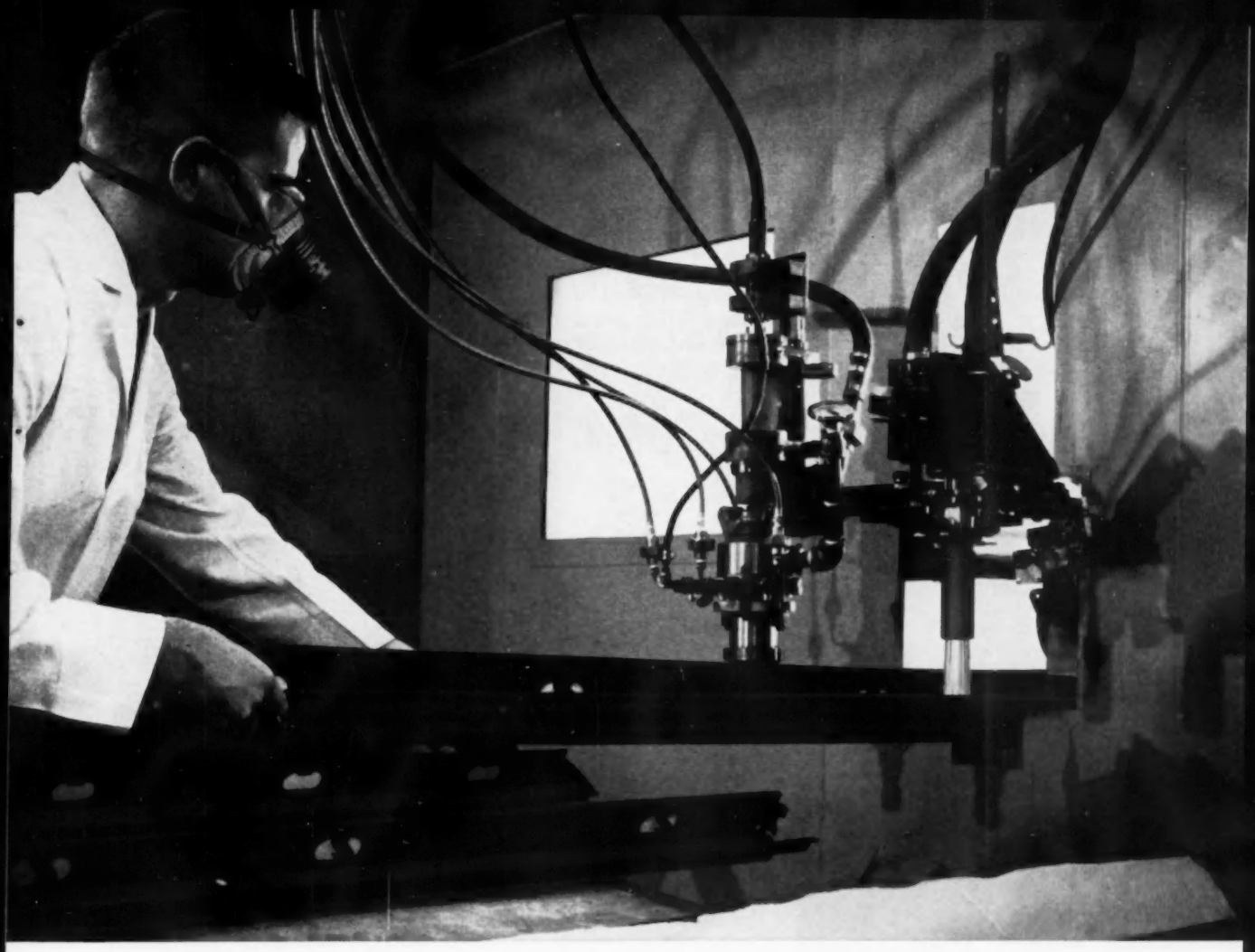
Epoxy Paste Adhesive

A solvent free epoxy paste, called Epon 901, can be cured with four versatile liquid curing agents for a wide range of industrial bonding applications. When it is mixed with any of the four curing agents, the resultant adhesives are thixotropic even during cure at high temperatures.

The cured adhesives supply tensile strengths up to 3800 psi. They are resistant to salt spray, water and most organic liquids. The adhesives bond stainless steel, aluminum, titanium and most other standard and "space age" metals; rubber, reinforced plastics, glass, ceramics and bondable nylon and teflon . . . to each other or in almost any combination of materials.

The four curing agents offer cure conditions from room temperature to 300 F and will meet most bonding requirements. Curing Agents A, B-1 and B-2 are color-indicating. They change the adhesive color from normal grey to red when paste and liquid have been mixed thoroughly. *Adhesive Dept., Shell Chemical Co.*

Circle 67 on Inquiry Card for more data



FOAMED-IN-PLACE, RIGID URETHANE

. . . one product answers five automotive needs

Voracel® foamed-in-place rigid urethane can show definite economic advantages over cut-and-paste batt applications. These advantages are: *insulation, structural support, sound deadening, "pocket sealing," and surface protection.* Application of Voracel can be accomplished by either a spray or pour operation.

Voracel is the Dow trademark for the rigid urethane foam resulting from the interaction of Voranol® urethane polyethers and Voranate® isocyanate adducts.

Although new on the automotive scene, Voracel shows excellent results in strengthening sheet metal, especially when it is foamed in place between two sheets. Exceptional ease of application, good adherence to metal, and high resistance to alkali, gasoline, and other common automotive materials indicate its use as lining for hoods and other sheet-metal areas. Voracel can be used to inhibit corrosion in enclosed areas such as rocker panels. For information, call or write to the Dow sales office nearest you.

ENGINE COOLING Ebullient cooling for passenger cars is under intensive research at Dow's Automotive Chemicals Laboratory and seems headed for broad use because of its obvious advantages. The increased efficiency of a vapor system is expected to allow smaller radiators and more freedom of placement—for example, under the floor or in the trunk. This thought is intriguing to designers!

DEGREASING Chlorothene® NU specially inhibited 1,1,1-trichloroethane is continuing to make news in on-the-line cold degreasing because of its safety and efficiency. Chlorothene NU combines the property of low toxicity and *no* fire or flash point, as measured by standard methods. And corrosion-prone white metals show a high tolerance for Chlorothene NU.

DOW AUTOMOTIVE CHEMICALS LABORATORY

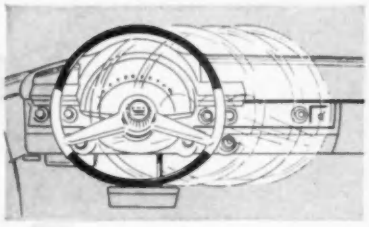
Created expressly to serve the needs of the automotive industry, Dow's Automotive Chemicals Laboratory is active in technical service and development. This laboratory is continually researching and developing coolants, hydraulic fluids, cutting and grinding fluids, functional fluids, fuel and lubricant additives, and synthetic lubricants. To see how this laboratory can be of assistance to you, contact your nearest Dow sales office or write Chemicals Merchandising in Midland.

THE DOW CHEMICAL COMPANY DOW Midland, Michigan

Circle 229 on Inquiry Card for more data

LOOK WHAT YOU CAN DO WITH FLEXIBLE SHAFTING

DESIGN IMPROVEMENT is a snap... with adaptable flexible shafting! Smart, practical, economical solution for non-colinear rotary power transmission or remote control. Gives you freedom of design even in close quarters... peak efficiency and reliability regardless of temperature, torsion, vibration and shock. Plenty of examples:

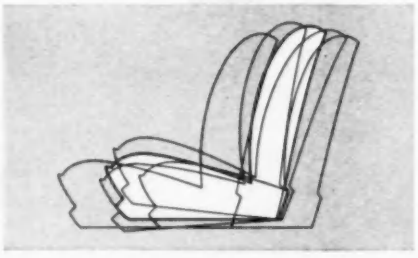


SWING-AWAY STEERING COLUMNS

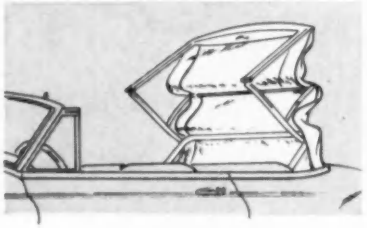
Flexible shafting allows the column to swing aside for the driver to enter... locks in rigid position for dependable steering.

SIX-WAY POWER SEATS

Flexible shafts solve the space problem, reduce fatigue failure, act as torsion bars reducing motor armature stresses induced when mechanism is stopped and stalled suddenly.



STOW

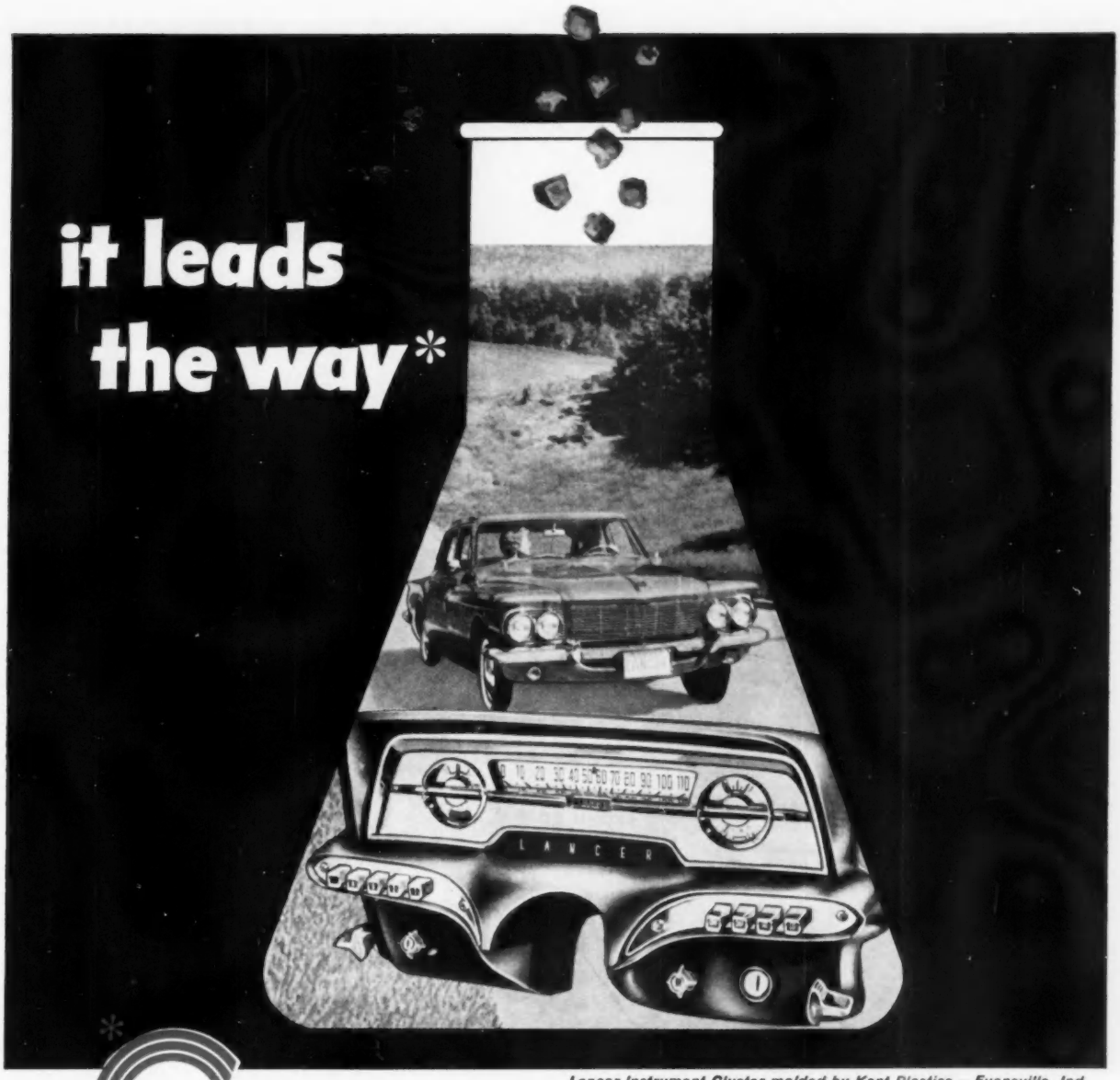


CONVERTIBLE TOPS

Remote power control flexible shafts work in pairs from several motors, solve synchronization problems, conserve space, reduce cost.

Whatever the requirements—from speedometer cables to drive shafts—when the job calls for power, consider flexible shafting. Available in all sizes and types from 1/8" core diameter to 1 1/4" diameter. For complete details, write for STOW Engineering Bulletin #570. Our engineering specialists are at your disposal for special problems.

STOW MANUFACTURING CO., SHEAR ST., BINGHAMTON, NEW YORK



Lancer Instrument Cluster molded by Kent Plastics — Evansville, Ind.

CYCOLAC® BRAND

TOUGH, HARD, RIGID POLYMERS FROM BORG-WARNER

It's another great one from Dodge . . . the Lancer Compact. And no wonder. Just look at this style-trimmed instrument panel cluster molded of CYCOLAC brand ABS polymers. Pounds lighter than metal, it's strong and tough, will never rust, stain or tarnish. Warm and smooth to the touch, molded parts of this ABS material remain new-looking for the life of the car. Economical, too . . . a cluster can easily be produced in intricate shapes and vacuum metalized without difficulty. Installation is fast, simple. No marring or scarring; little post-installation finishing required. And CYCOLAC brand polymers are colorable too . . . to exactly match-meet the myriad of automotive finishes. Proof again that this Borg-Warner material is the most versatile of all plastics. Investigate . . . for full details write Dept. 3-C.

MARBON CHEMICAL DIVISION **BORG-WARNER**

WASHINGTON WEST VIRGINIA

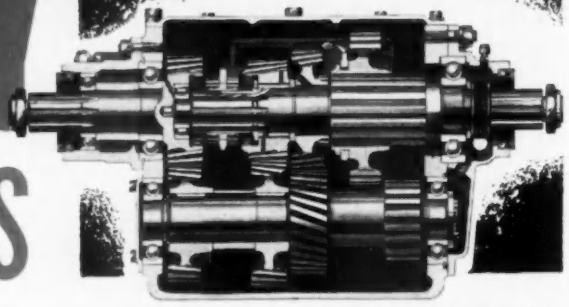
CYCOLAC is the registered trademark of Borg-Warner

Circle 231 on Inquiry Card for more data

NEW 4-SPEED AUXILIARY TRANSMISSIONS

For Medium-Heavy-Duty Trucks and Tractors

MODELS 4-B-73 AND 4-B-75



SPLIT GEARS AND *GO*... SHIFT INTO DEEP REDUCTIONS AND *PULL*

You no longer have to pay a premium price for a 4-speed auxiliary which is heavier than your operation demands. Save weight *and* money with one of the new Fuller 4-speed Auxiliaries equipped with overdrive, direct, low and low-low gear ratios in one compact, 375-pound unit. Get gear-splitting ratios plus deep reduction.

The Fuller 4-B-73 is designed for use with engines producing approximately 500-600 lb./ft. of torque. Use of special high-capacity bearings permits the 4-B-75 to be used with engines in the 600-700 lb./ft. torque class.

Get all the extras of price, performance and payload. Specify the new Fuller 4-B-73 or 4-B-75 4-speed Auxiliary Transmissions. For full details, see your truck dealer or write Fuller Manufacturing Company.

GEAR RATIOS
Models 4-B-73 and 4-B-75

Overdrive	.85
Direct	1.00
Low	1.24
Low-Low	2.22

FULLER TRANSMISSION DIVISION
EATON MANUFACTURING COMPANY
KALAMAZOO, MICHIGAN

Sales & Service: West. Dist. Branch, Oakland 6, Cal. • Southwest Dist. Office, Tulsa 3, Okla. • Automotive Products Co., Ltd., Brock House, Langham St., London W.1, England, European Rep.

AI Presents . . .

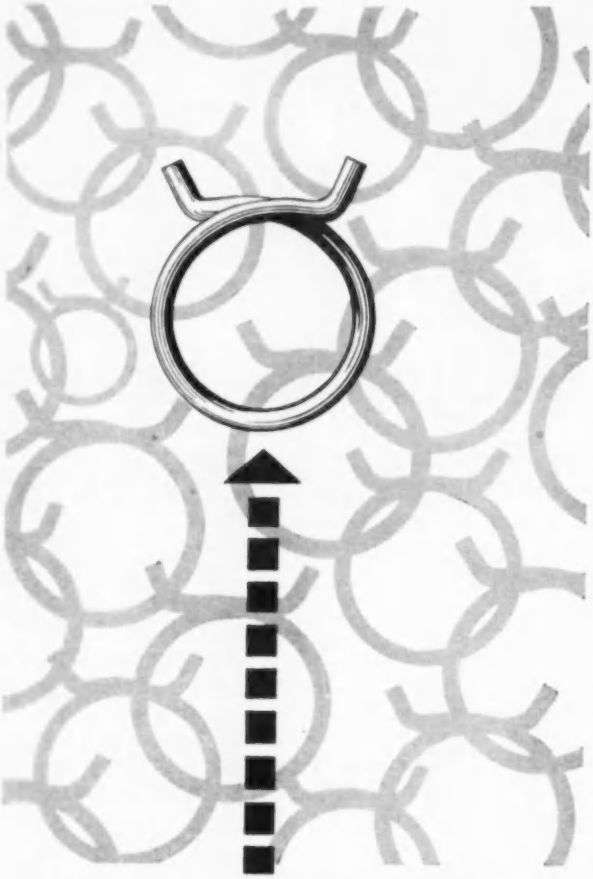
The Design Improvement Planning Service

MANY readers of AUTOMOTIVE INDUSTRIES commented enthusiastically about the unique technical information service provided in December, 1960, when a complete file of technical data sheets was mailed to every plant in which the magazine is read. This file consisted of up-to-date technical information about many major products advertised in the December 15, 1960, issue. A similar project is included in this issue. It is entitled "The Design Improvement Planning Service." It consists of a Design Improvement Project Planning Sheet inserted in this issue immediately following the last folio numbered page. The sheet is for use in compiling data available from a complete file of "Design Improvement Data Sheets" which will be mailed separately to each plant in which the magazine is read.

THE data sheets are supplied for the purpose of helping design engineers plan product research, design and development improvements. This service will enable engineers in each plant to undertake a complete design improvement project using the latest technical information available from each company which supplied data sheets for the mailing. The Design Improvement Project Planning Sheet inserted in this issue is for use in tabulating and compiling all of the major "follow-through" steps in using the data on the technical data sheets in order to control and coordinate the design improvement projects which may be undertaken.

THIS combination enables you to plan and fulfill a project of improvement of design operations by taking advantage of the improved components, parts, materials, supplies and research of the manufacturers who have supplied the data. This comprehensive program reduces to a minimum, the time required to locate and identify the products with factors of improvement which you may consider important to use in current design projects of your own. It eliminates the time-consuming delays which are involved when such data have to be obtained by a mail or telephone inquiry for information which should be available from your permanent technical information files. It is another example of the constantly growing technical service of this magazine to the automotive field.

The Editors of
AUTOMOTIVE INDUSTRIES



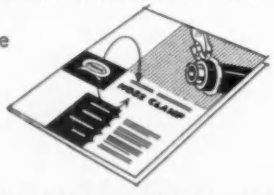
Corbin's New Color-Coding Makes "Wrong-Size" Hose Clamps Easy to Spot!

Wrong-size hose clamps show up at a glance with Corbin color-coding! "Strays" don't have a chance. Corbin color-coding prevents mix-ups in your stock room . . . on your production line. It's another *plus that wins preference* with hose clamp users.

. . . and you get all this from CORBIN, too!

- **Proven performance** — Continuously used by many leading manufacturers since first introduced.
- **Volume supply** — Corbin, originator of self-tightening hose clamps, is the world's leading supplier.
- **Integrated deliveries** — Systematically integrated to protect line production.
- **Reserve stocks** — Reserve stocks maintained for emergency requirements.
- **All sizes** — Widest size range available.

Write for Fact Folder HC-20 and Size-Specification Sheet



CORBIN

CORBIN HOSE CLAMP DIVISION
THE AMERICAN HARDWARE CORPORATION
NEW BRITAIN, CONNECTICUT

Application of A Quality Cost System at Chrysler

By Roman E. Boruta
Quality Control Manager
Trenton Engine Plant
CHRYSLER CORPORATION

A MORE complete and coordinated Quality Cost Program is being developed by the Corporate Quality Control Group to be implemented in all of Chrysler's plants. It consists of the organizing of Quality Costs into three segments: (1) preventive costs, (2) appraisal costs, and (3) failure costs.

In detailing this program of Quality Cost, the problem naturally existed "where do we start?"—which of the three costs should we attack first? It took no great brain power to realize that the real gain, due to improved quality, could be realized in the area of failure cost.

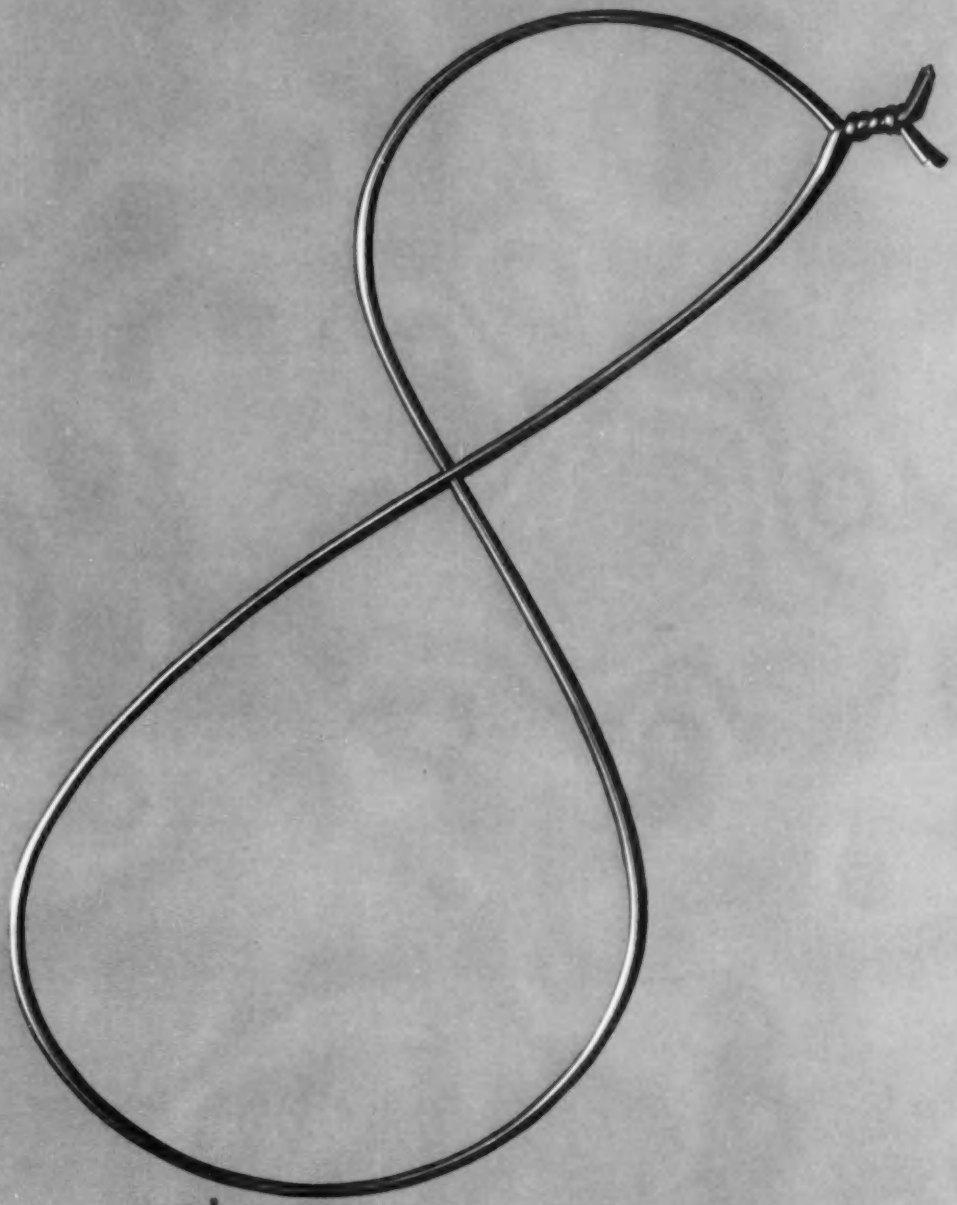
In preliminary investigation of this failure cost, the following facts were noted: 1. Failure data was available in quantity, but was not being used to the best advantage. 2. Cost data was also available but not made available to the right people. 3. Published accounting of scrap was generally skimpy and carried little detail. Reports were not timely nor did they pinpoint problem areas.

Any system of scrap and scrap cost control must answer a few basic questions: 1. Which parts contribute most toward the total scrap cost? 2. Which operation accounted for most of the scrap? 3. What assignable cause was responsible for the scrap? 4. What is the trend in scrap cost?

To give you some idea of how the actual data processing system worked out, let me give you in general terms, some of the details. The first step that had to be taken was to establish two Cost Master Decks, one for Quality Cost information and one for Accounting Cost information. For each operation in the plant a Tabulating Key Punch Card was established. On to these cards the following data was coded:

1. **The total dollar value of the material for plant fault scrap only.** This is what it has cost the plant in raw material costs such as cost of a forging or a casting.
2. **The total non-recoverable dollar value of the material on vendor scrap.** By way of explanation let's assume that a cylinder block is scrapped after a number of operations have been performed on the block. At the point of scrap, bearing caps and welch plugs may have been added to the basic raw block, but when the block is scrapped the Foundry will replace the

(*Turn to page* 330, *please*)



good reasons

why it pays to specify

American Steel & Wire

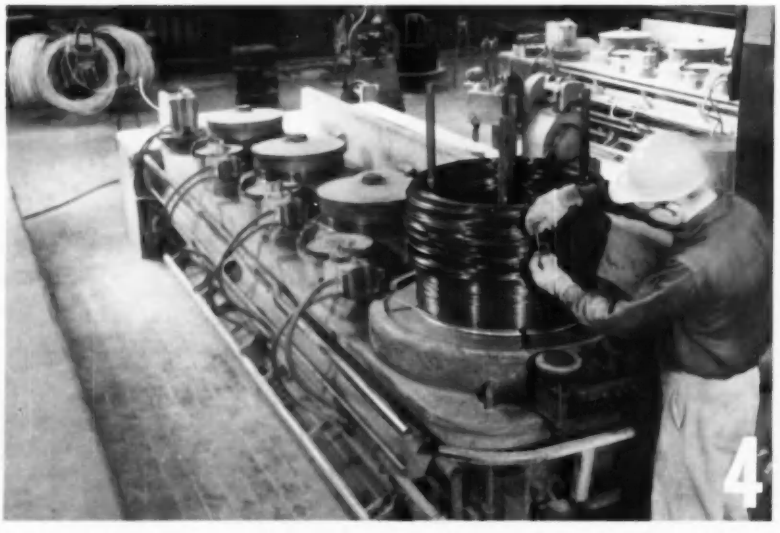
for all of your

stainless steel wire needs

good reasons why it pays to specify American Steel

By using modern welding techniques, we can turn out continuous coil weights as heavy as 500 pounds to suit your particular needs. Heavier coil weights reduce down time on your machines, speed handling of material.

The latest in controlled annealing methods enable us to produce uniform properties in stainless wire that assure consistent performance on your equipment and in your product.



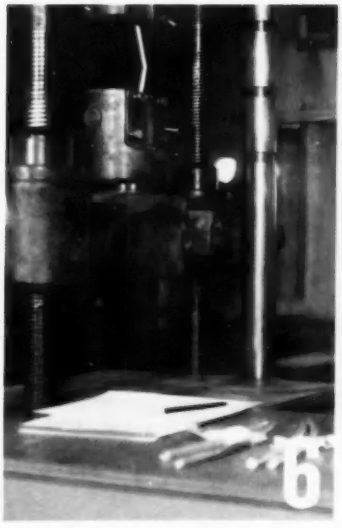
To insure the gage of your stainless is consistent from end to end, it's checked constantly during the continuous drawing process. ASW's wide range of modern, precision drawing machines can turn out everything you need in type, size and finish.

After drawing, the wire is again inspected to make certain that the gage and finish are exactly as specified.

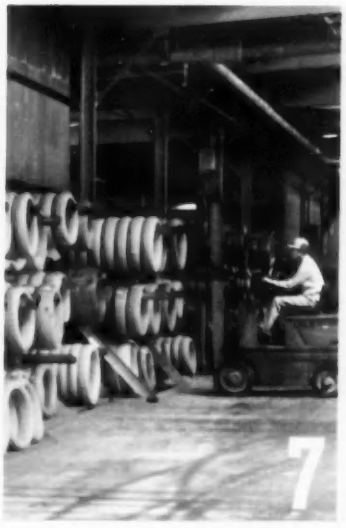
This mark tells you a product is made of modern, dependable Steel.

& Wire for all of your stainless steel wire needs

Up-to-date salt and acid bath techniques and equipment guarantee the smooth, clean wire surface so important to the finished quality of your product. After cleaning, coatings such as this electrolytic copper coating are often applied to make your job of fabrication easier.



During processing and at finished size, our stainless wire is tested for tensile strength and other properties to make sure it meets specifications. Such tight control insures quality.



To insure supply and fast delivery, we stock 300 to 400 tons of cold heading stainless wire in addition to a heavy tonnage of other stainless steel wire items at all times.

8 **Our stainless steel wire service is second to none.** In addition to our regular salesmen, we have special Stainless Steel representatives in your area who have both engineering and mill backgrounds. They know metals, they know production. Their assistance can be invaluable to you in solving the really tough ones. Call your nearest ASW Sales Office today. If you like, we'll have a man out to see you at your convenience. Or if you prefer, write American Steel & Wire, Dept. 0389, 614 Superior Avenue, N.W., Cleveland 13, Ohio.

American Steel & Wire Division of United States Steel

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
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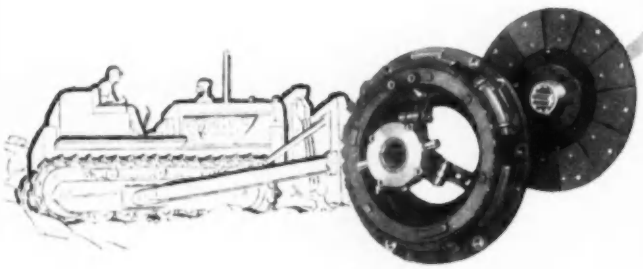
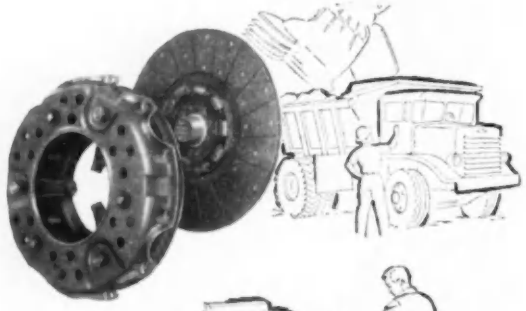
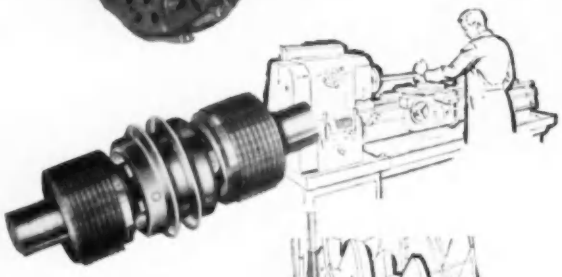
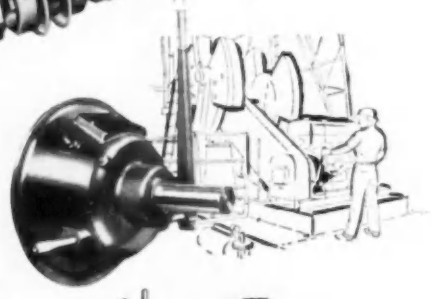
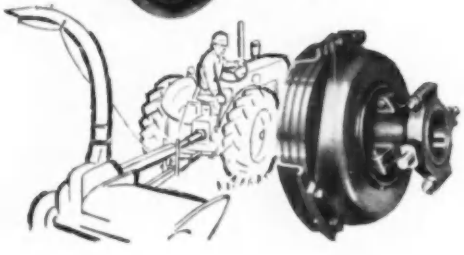
DYNAMIC POWER CONTROL
by ROCKFORD CLUTCH











EXTRA THICK FACINGS GIVE LONGER LIFE

Rockford Clutches have maximum thickness facings . . . up to 1/32" more friction material. Only the highest grade materials are used. Rockford's extra long-life facings reduce scoring and greatly cut costs of downtime, replacement and labor.

TORTURE PIT TESTING ASSURES SAFE OPERATION

Torture testing pits burst clutches to bits! At specified intervals, clutches are removed from the production line to undergo severe centrifugal tests. These clutches are spun to destruction but must withstand predetermined high speeds and specified time limits.

STRONG CONSTRUCTION WITHSTANDS RUGGED SERVICE

Corrosion resistant discs are made of high carbon spring steel. Heat treated cast iron improves grain structure of pressure plates. Strong construction is Rockford's key to long and rugged service.

VIBRATION-FREE CLUTCHES OFFER SMOOTHER ENGAGEMENTS

Smooth engaging Rockford Clutches are vibration-free! Rockford Clutch eliminates vibration through dynamic and static balancing. Clutch vibration can ruin bearings and crack housings. Minimum inertias prevent gear clashing and delayed shifting.

PRECISE PRODUCTION MEANS PRECISE PERFORMANCE

Each Rockford Clutch component is precision built. Rotary surface grinding assures uniform thickness. Discs are checked carefully for dish and run-out. Inspectors check close tolerances for flatness by pressure and weight-drop drag machines.

If you need clutches for original equipment or for replacement, Rockford Clutch offers the highest quality in power control. From research to inspection, Rockford Clutches are designed and built for long, rugged and reliable service. Rockford offers an ultra-wide range of power controls for all industries. Write today for illustrated brochure.

ROCKFORD CLUTCH

315 CATHERINE STREET, ROCKFORD, ILLINOIS

Export Sales Borg-Warner International • 36 So. Wabash, Chicago, Ill.

ROCKFORD B-W CLUTCH DIVISION OF BORG-WARNER

Circle 234 on Inquiry Card for more data

Circle 235 on Inquiry Card for more data

RUST

won't form on your steel and ferrous metal parts when they are protected by paper carrying this identification.

PROOF

of the protection offered by CROMWELL Ferro-Pak is on the next page.

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Cromwell Ferro-Pak

PROTECTS

Ford parts from corrosion—saves refinishing costs

From Ford's Delaware Valley Parts Depot near Camden, N. J., knocked-down cars, trucks and tractors are shipped to assembly plants in all parts of the world. En route, and particularly in the tropics, rust attacks these shipments. De-rusting is tedious and expensive.

By using Cromwell Paper Company's V.C.I. (Volatile Corrosion Inhibitor) paper, Ford prevents rust from attacking parts in shipment and storage. The chemical in this paper is constantly vaporizing. It is attracted to ferrous metals and forms a gaseous "envelope" around them, preventing moisture from causing rust.

Ferro-Pak is used to line the wooden shipping containers and in some cases shipments are interleaved with Ferro-Pak sheets. The paper, in two weights and various widths, is supplied in rolls and cut to size on the job. It keeps ferrous parts clean and ready for instant use, costs far less than other protectives and can be used with all kinds of parts, including seats covered with plastics or textiles.

If you want to know how Ferro-Pak can meet your needs and save you money, write to Cromwell.

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PAPER COMPANY

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Manufacturers of: Papers (Impregnated • Coated • Laminated • Reinforced • Flexible) Bags • Sacks • Liners • Covers • (Single and multiwall construction, using all types of material to carry, cover or protect all types of products).

Observations

By Joseph Geschelin

Defense Flaw

Mr. Hartley Barclay's article "Major Defense Flaw" in AI, March 1, 1961, brings up the subject of conversion to defense requirements and emphasizes that officials at the Pentagon still believe that mass production facilities can be readily converted to the making of military materiel. We heard the same thing a year or more before Pearl Harbor and before the Pentagon was built. The fact is that motor car and truck facilities of the prewar era were not readily convertible to build other kinds of products. The government has documentation on this. When we addressed the Industrial College of the Armed Forces in 1947 we were told that only about 25 or 27 per cent of the single purpose equipment in use just before WWII was converted. The histories of the armed forces, written at the end of WWII will show that most manufacturing facilities for radial engines, truck engines, and tank engines had to be created from the ground up—and involved many new building programs.

Today the problem of conversion is much more serious. In the first place, most mass production facilities for building engines, axles, and other major components employ transfer machines. These are sufficiently flexible to take care of design changes in the same family of parts. But no transfer machine is capable of direct conversion for an entirely different kind of part. That's one side of the picture.

Consider now that the Ordnance Department is seriously thinking in terms of gas turbine power for motorized vehicles, including tanks. The fact is that apart from the installed facilities for aircraft jet engines, there are no plans at all designed and equipped for the mass production of gas turbines. Such facilities may even require machine tools and methods — for volume production—that do not yet exist on paper. This is the area that demands a great deal of study and advance planning.

Coated Abrasives

Look for some revolutionary advances in coated abrasives of every kind. One of the suppliers has developed a material for discs and belts with a special nylon backing which is said to outlast conventional materials. The same company also has a special waterproof paper back abrasive for wet sanding that is claimed to resist wear and tear to a remarkable degree.

Heat Treat

A proprietary heat treating procedure called "Drastiquench" has been introduced by Park Drop Forge. In large crankshafts, for example, they can guarantee uniform depth of hardness in carbon steels, following faithfully the pattern of fillets and bends. Penetration is sufficiently deep to leave a margin of heat treated surface after drastic machining. The company, understandably, will not release details of their procedure. But they guarantee it works.

Welding Progress

More than a year ago we mentioned that Lincoln Electric had developed a radically new arc welding technique called Innershield. That it's a real advance has been demonstrated by the installation in the Buick rear axle plant. Details of the story were given by Williams and Spice of Buick at the SAE Meeting in March. In effect, it is the next step after the Lincoln submerged arc technique which did so much for many years. With Innershield there is no longer flux to handle and clean and the process is faster and much more reliable.

Seat Belts

A giant step forward in safety engineering was taken by the industry recently with the announcement that all passenger car makes would supply seat belt installation points as standard equipment. This makes it a lot easier and certainly less expensive to the car buyer to specify seat belts. If this is followed by other promotional material addressed to the dealers and car buyers it should mark the beginning of a new era.

Reinforced Plastics

Recent announcement by Ford confirms information we received some time ago that Fiberglass cabs and sleeper cabs have found their way into large trucks made by a number of different truck builders. Possibly the first stage in this development was the introduction of a Fiberglass cab by White, the cab being produced by the Molded Fiber Glass Body Co., a pioneer in this field. Fiberglass cabs are lighter, have adequate strength structurally, and can be molded into pleasing forms.

Bright Anneal

Electric Furnace Co. has just developed an ingenious process for bright annealing of automotive stainless steel. Suppliers of strip material for moldings and other

There's an R/M friction part in every make automatic transmission

... because only Raybestos-Manhattan makes all types of friction materials! For example:

- **Sintered metal plates**
- **Semi-metallic plates**
- **Cellulose plates**
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- **Cellulose band lining**
- **Plastic friction dampeners**

What does this mean to you? It is your assurance of an unbiased recommendation of the material best for your application.

In addition, you can count on R/M for uniformly high quality; reliability of supply; prompt and extensive engineering, research and development assistance; competitive prices.

An R/M sales engineer can be at your desk within 24 hours if you will call or write. Meanwhile, why not send for our free bulletin of helpful engineering information on friction materials.

RM

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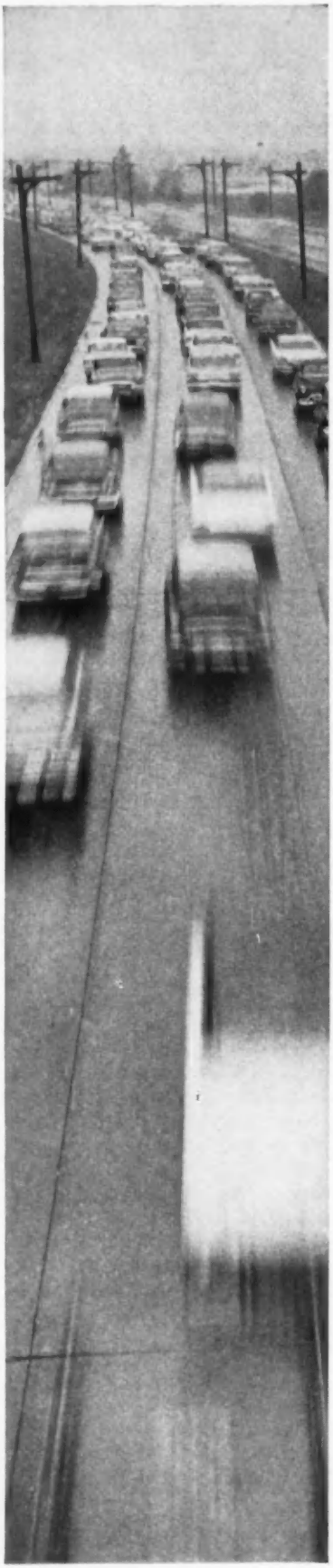

decorative parts need such equipment badly to keep up with the demand for bright metal strip with mirror-like finish. In fact several of the leading producers already have placed orders for these new mills.

Foote Burt

Keep your eyes on Foote Burt from this time out. As you know the company has a new president and a new vice-president for marketing. They are seeking new avenues for the exploitation of the company's know-how and experience in building long lived and trouble free machine tools. They will be exploring new ideas and new approaches to the problems of their many friends in the automotive industries.

Viscosity Described

Lubrication (The Texas Co.) devoted two issues, beginning with January 1961, to a review of the current theories and measurement of viscosity. The first installment covered fundamentl principles, and described common methods of measuring viscosity. The second installment was devoted to viscosity unit conversions; effects of temperature, shear, pressure, and nuclear radiation; film lubrication; liquid flow in pipes and hydraulic systems.

Ignition Systems

When Chrysler Corp. adopted the alternator electrical system for all its vehicles it was generally assumed that this would point to a trend for the entire industry. There is some question now in the light of the paper presented by E. J. Newill of Delco-Remy at the recent SAE Annual Meeting. This paper deals with the evaluation of generator and battery systems in city traffic, concludes that the chief advantage of the alternator is in providing charge at idle speeds. The conventional generator with a modern regulator was shown to deliver full output at lower speeds, superior output in the middle range, and higher output in the middle through the high speed

Circle 236 on Inquiry Card for more data

range. Delco-Remy is producing an entire family of alternator systems but these are primarily for heavy duty vehicles and special installations such as for police cars where large power output is required. It will be interesting to see how many, if any, makes other than Chrysler will have an alternator in 1962.

Cast Rods

From the very beginning connecting rods have been made by forging. We learned just recently that considerable work has been done with cast rods, using the strong ArmaSteel material. This work has been so successful, in fact, that there is promise that at least one 1962 passenger car engine may be fitted with cast rods. This is indeed a matter of wide general interest, remembering that cast crank shafts now are standard equipment in quite a number of engines in the Ford and General Motors family. ■

. . The Corvair 95 . .

Chevrolet's Space Age Panel Truck

By Alex C. Mair
Chevrolet Motor Div., General Motors Corp.

Technical Problems and Solutions

BEFORE a vehicle can enter production, much development and intensive test periods are required. During this time many problems appear. Most of the time the analysis and correction is easy, but some of the troubles are baffling and resist solution.

One such problem was wind-steer. During the evaluation of the pre-test jobs, driving in a cross wind on a windy day was a difficult task. The panel and station wagon in particular rejected all attempts to steer straight down the road. This behavior appeared to be characteristic to all compacts, however, this handling problem was not acceptable by Chevrolet standards. The wind tunnel spotted the trouble immediately.

The shape of the Corvair 95, particularly of the panel and station wagon is such that the center of wind pressure is forward of the center of gravity.

Since the front and rear tires have equal loading, and the CG is approximately between them, any side load at the CG will produce front and rear tire slip angles and no steering effect. However, a load applied ahead of the CG will cause greater slip angles on the front tires than on the rear and cause the vehicle to steer out of the wind and actually add to the side movement caused by the wind side force.

One corrective measure is to lower the rear and raise the front tire pressure so that the rear slip angles will be greater than the front. This, of course, only works when a gust of wind hits. Under normal conditions the unit still oversteers and is completely unacceptable.

Extensive test work was conducted using variations in front and rear suspension and steering geometry, but none corrected the difficulty without having a detrimental effect on normal handling. Much work was done with tire pressure variations and it was noted that very high tire pressure, both front and rear, was good but, of course, the ride suffered. It was noted that another production vehicle, the one ton forward control panel, experienced no wind steer difficulties. This is a larger vehicle which uses high pressure truck tires. Softening its tires also produced dire results, so it was obvious that the difficulty could be corrected with tires which produce lower slip angles per unit of side load.

Extensive tests were conducted in the mountain cuts of Arizona where updrafts and variations in wind direction subjected the vehicles to every conceivable wind steer problem. Chevrolet's tire suppliers participated fully in this program and their interest and diligent research led to the successful development of a much lower cord angle tire.

The new low cord angle tires have a much higher lateral rate with only a moderate increase in vertical rate resulting in a small reduction in ride value. With these tires, the vehicle handles very acceptably in the wind, and certainly implies that many other vehicles could be improved with some tire work.

Another problem was that of frequent high gear disengagement when

How to choose the best adhesive

Proper selection of the best adhesive for a given application can reduce your costs and improve your product. There is no known all-purpose adhesive.

To choose the best bonding agent, you must assign degrees of importance to the following five factors:

- Heat resistance and strength requirements
- Viscosity and hot-flow characteristics, if heat-setting type is favored
- Temperature limitations of the available processing equipment and materials to be bonded
- Resistance to various liquids and gases to which the assembly might be exposed
- Chemical and physical properties of materials to be bonded

How much importance to each point? That is where Raybestos-Manhattan's years of experience can prove profitable for you. Almost all the Ray-Bond adhesives available today can be effectively modified to meet your particular bonding requirements. We would welcome the opportunity to work directly with you to select or develop the type or types of adhesives best for your purposes. A Raybestos engineer can call at your convenience. Won't you let us hear from you soon.

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DIE CASTING REPORT

(permanent mold)

Application: *Auto Front Header Casting.*

Problem: *Standardize on mold wash.*

Solution: *'dag'® Dispersion 193—diluted with two parts water; spray-applied.*

RESULT: *CRITICAL CASTING QUALITY ASSURED BY SINGLE MOLD COATING*

The casting involved fits above the windshield on a luxury model convertible. It measures 61" in length, weighs 18 pounds after trimming. 1/16" tolerances must be held in each dimension, with a surface finish of 80 microinches maintained. Many mold coatings, from a variety of sources, were evaluated by Enterprise Brass Works, Muskegon, Michigan, but none proved acceptable. By adopting 'dag' 193 as their mold wash they achieved:

1. "packaged" uniformity — no variation between applications
2. better insulation and release characteristics
3. longer-lasting effectiveness in the mold — up to 300 units, 40 hours of operation, per application

As a guide toward increased effectiveness in your metal casting operations, we invite you to send for your copy of Bulletin No. 425. Address Dept. AI-31.

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Sales offices in principal cities.

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Circle 238 on Inquiry Card for more data

running on rough roads. We felt at first that the long longitudinal control rod vibrated vertically, causing a length change. This change pulled the shift lever fore and aft and eventually forced the transmission out of gear. The rod was stiffened generously but to no avail. Its weight was decreased then increased, but still no cure. Various methods of tuning the linkage with heavy rubber insulated knobs were tried without success. It was discovered that the primary vibration of the shift linkage was at rear wheel hop frequency or at about 12 cps. The truck was then put on the Bump Rig and run at wheel hop frequency; high gear disengagement occurred consistently. Observation clearly indicated that at this frequency, the powerplant was vibrating fore and aft on its mounts with sufficient amplitude to cause gear disengagement.

Retuning of the power plant mounting system frequency halted the motion and eliminated the disengagement of the transmission. Power plant isolation remained adequate. ■

The foregoing was extracted from a paper presented by the author at the Society of Automotive Engineers' International Congress and Exposition of Automotive Engineering, held in Detroit on January 9-13, 1961.

Willys Merger Denied

Reports that Willys Motors, Inc. will merge with American Motors Corp. have been denied by S. A. Girard, Willys president. He stated, however, that Willys and AMC are discussing a joint engine facility in Mexico, where both have assembly plants.

Mr. Girard said "domestic, export and government phases of our business are very good. Everything points to a good year in 1961. We have long-range plans for overall expansion."

Willys, he said, will add another Jeep vehicle in mid-year. This will be the commercial version of the Jeep Fleetvan, a sit-stand delivery truck.

Moody Is Elected

Robert F. Moody, general sales manager of Hyster Co., has been elected president of the Material Handling Institute.

News of the
MACHINERY INDUSTRIES

(*Continued from page* 287)

The Subcommittee reported that it felt the Bryant Chucking Grinder Co. had "acted in good faith and followed all the established procedures. . . ." This comment was added:

"The subcommittee also recognizes that in delivering plans, or partial plans, for the assembly of the Bryant grinder to the Soviet purchasing agency, the Bryant Co. was following an accepted and unavoidable procedure which is the natural concomitant of the sale of equipment. The subcommittee believes, however, that in the future, companies which obtain Department of Commerce approval for shipments of machine tools or other complex equipment to the Communist bloc, should be instructed to wait until their equipment has been shipped before transmitting assembly plans or other technical diagrams."

The Bryant license cancellation brought forth the following comment by Ludlow King, executive vice-president of NMTBA, under date of March 3:

"This action might seem to cast doubt on the status of other pending applications for licenses to export machine tools to the USSR. It should be pointed out that the entire controversy between Governmental agencies has been within the area of precision bearings. There is no intimation, as of this date, that there has been any change in procedures involving licensing of equipment for any other industry such as the automotive, for which we understand substantial applications are pending and, as you know, have in some instances been granted.

"We were advised today that the Bureau of Foreign Commerce is still accepting applications for nonpositive list machine tools to the bloc countries. They request, however, that applications be based on inquiries where there is a reasonable expectancy for them to materialize into firm orders. Furthermore, they should involve only inquiries where considerable expenditures would be required in devel-

(*Turn to page* 328, *please*)

THE HOSE WITH BENDING POWER

Pressure hose that resists kinking can save money in installation and flex life—and increase reliability!

NYLAFLOW hose features an all bonded construction with the braid chemically bonded to the inner-core and the abrasion resistant nylon cover chemically bonded to the braid. Thus the hose can be bent to a considerably tighter radius before kinking occurs.
New NYLAFLOW® Pressure Hose* has half the wall thickness and weighs only 1/5 as much as wire braided rubber of equivalent burst strength . . . yet gives you exceptional resistance to flex and vibrational fatigue.

NYLAFLOW hose takes delight in resisting the effects of hydraulic fluids, caustics and almost all organic solvents. NYLAFLOW's freon permeability is approximately 1/10 that of rubber hose. It is an excellent nonconductor for use around high voltage lines.

Other important features

Odorless, non-toxic, non-corrosive, fungus resistant and will not embrittle in storage. Temperature range (—40°F to 225°F). NYLAFLOW hose can be permanently heat-formed to small, stress-free bend radii, saves lengths required, improves performance and appearance.

Burst pressure range of 5,000 to 12,000 psi; available in long continuous lengths in standard inside diameters of ⅛" through ¾". Hose meets burst requirements of SAE specification 100-R-1 and 100-R-5. Compact, lightweight, reusable fittings and assemblies also available.

Tubing also available

NYLAFLOW Pressure Tubing in sizes up to ⅜" O.D., with burst pressure ratings of 1,000 and 2,500 psi, is ideal for lower pressure requirements. It is also flexible for easy installation and can be attached with standard flare or compression fittings designed for metallic tubing.

Full details and illustrated brochures now available on new NYLAFLOW Pressure Hose and Pressure Tubing. Write today!

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POLYPENCO *industrial plastics*

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Reading, Penna.
EXPORT: Polypenco, Inc.
Reading, Pa., U.S.A.

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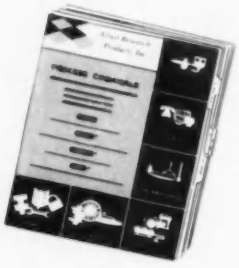
If one of our present products does not meet your needs, we'll be glad to work with you to find an answer to your problem.



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Includes information on WAGNER Silicon and Selenium Rectifiers, WAGNER Auto-Loaders for transfer of racks and parts from conveyors to plating machines or between conveyors, Automatic and Semi-Automatic Plating Machines, Barrels, Tanks and other equipment.

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Price and delivery information on a wide variety of plating room necessities, including ROLL-TOP Zinc anodes, FLAT-TOP copper anodes, ELECTROCOP Flat Copper anodes, Cadmium and Tin Anodes, Acid Replacements, Buffs, Chemicals, Cleaners and Maintenance Materials.

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Chemical and Electrochemical Processes, Anodes, Rectifiers, Equipment and Supplies for Metal Finishing

IRIDITE® Chromates | IRILAC® Coatings | ISOBRITE® Brighteners | ARP® Supplies | WAGNER Equipment

oping the business, and the business would not be pursued unless a license were approved in advance."

Republic Investigating High-Energy Forming

Republic Aviation Corp. has received a study contract for investigating the use of electrical discharge to form high-strength metals. The contract, in the amount of $22,900, was awarded Republic by the National Aeronautics and Space Administration.

Two basic methods will be compared as to their efficiencies in shaping stainless steel and aluminum alloys. The first involves the forming of metal workpieces by shock waves created in a liquid medium. In the second method, known as inductive repulsion forming, an induction coil is placed in close proximity to a workpiece. During the electrical discharge, opposing currents in the coil and metal produce a magnetic force which repels, and deforms, the metal away from the coil.

Republic's announced work in the use of electrical energy for metal-shaping dates to 1959, when the company revealed development of an experimental device called the "spark bomb." This device stored up electrical energy and then released it within some 40 millionths of a second with a force stated to be equal to 6000 hp.

Around the Industry

Warner & Swasey Co.—product income for 1960 totaled $57,448,-181 and net income after Federal taxes was $3,053,644, equivalent to $3.05 per share of common stock. For 1959, the comparable figures were $56,665,948 sales, $4,167,495 net income, and $4.16 per share. The reduction in earnings, according to the company's annual report, was largely attributable to shipments during 1960 at prices set late in 1958 and early in 1959.

Cincinnati Milling Machine Co. — shipments for 1960 rose to $123.5 million, up $17.2 million over 1959. Consolidated net earnings from U. S. and overseas operations, subject to final audit, amounted to $1.51 per common share, compared to $1.11 for 1959.

2500 ton Verson Crank Press

serves dual purpose for truck and bus builder

For many production requirements, the ability to make major equipment do more than one job can lead to important savings. That's just what a large manufacturer of automobiles, trucks and busses has done with the Verson press shown above.

The press is a big one. Capacity is 2500 tons. It's a double crank machine with front to back cranks. Area of the bolster between columns is 60″ x 276″. The press operates at eight strokes per minute with a twenty inch stroke. The slide is equipped with delayed action pneumatic knock outs, and the bed is equipped with pneumatic die cushions. Floor space required is 124″ x 392″. Height is 310″. Weight exceeds 850,000 pounds.

As shown above the press is tooled to produce the truck and bus frame members shown at the left. When required, tooling can be changed to produce rear axle housings, a completed stack of which can be seen to the right of the press. Three sets of dies are installed for producing the rear axle housings to blank, draw and finish form.

If you're interested in getting the most out of press equipment, go over your requirements with your Verson Representative. He'll be glad to show you how you can take maximum advantage of Verson press building and press application capabilities. If you prefer, send an outline of your needs and we will make specific recommendations.

Verson

Originators and pioneers of allsteel stamping press construction

VERSON ALLSTEEL PRESS CO.

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MANUFACTURERS OF MECHANICAL AND HYDRAULIC PRESSES AND PRESS BRAKES • TRANSMAT PRESSES • IMPACT MACHINING PRESSES
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Safely—quickly—efficiently ... Heppenstall can handle it

TIGHT SQUEEZE?... Clearance a limiting factor in your plant? Heppenstall's Rotating Coil Tongs lift, rotate and stop at any position through 360°. Motorized arms move to maximum and minimum openings to your particular specification.

Heppenstall tongs meet current demands of today's automotive industry. For more specific information call or write us direct.

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MIDVALE-HEPPENSTALL COMPANY
NICETOWN, PHILADELPHIA 40, PA.

H M H

Circle 242 on Inquiry Card for more data

Chrysler Quality Cost System

(*Continued from page* 316)

block only, which in effect is payment for the scrapping of the block, however, the cost of the bearing caps and welch plugs must be assumed by the machining plant.

3. **The department where the scrap is found.**
4. **The last operation number.** This means simply the last operation that has been performed.
5. **The part number.**
6. **The direct labor minutes per unit through the last operation.** This is the accumulation of the amount of direct labor performed on the part to the point that it became scrap.
7. **The direct labor minutes revision date.** This is necessary to be certain that if any changes had been made on the process sheets the revision date would indicate whether this change had been incorporated into the Master Deck.
8. **The departmental budget labor rate.** This is the average labor rate of the department performing the operation.
9. **The departmental variable burden percentage for the department performing the operations.** (In Chrysler Accounting variable burden is calculated as a percentage of the direct labor.)
10. **The revision date for the budget data.**

From this basic data the final information that is necessary to complete the Key Punch Card on the Master Deck can be machine computed and key punched. This information is the actual cost data and is done as follows:

1. The Unit Current Labor Dollars which is machine computed by multiplying the direct labor minutes per unit by the departmental labor rate divided by 60.
2. The Unit Variable Burden Dollars which is machine computed again by multiplying the departmental variable burden percentage by the Unit Current Labor Dollars divided by 100.
3. The Unit Current Total Dollars, Plant Fault which is the addition of the Unit Total Material, Current Labor, and the Variable Burden Dollars.
4. The Unit Current Total Dollars, Vendor Fault, which is the addition of the Unit Non-Recoverable Material, Current Labor, and the Variable Burden Dollars.

From this Cost Master Deck, all the reports which have a necessary need for the Quality Control Department can be processed. The Cost Master Deck for the Accounting Department was worked out in similar fashion except to use Permanent Labor Rates.

(*Turn to page* 362, *please*)

Quality metal products deserve
"the finishing touch" of Mahon

another example . . .

'maximum protection' cargo drums from Top U. S. Supplier

Mahon's metal cleaning and rust-inhibiting line installed at the Port Arthur, Texas, plant of a major supplier, assures a "100% scale-free" product. Complete finishing is after fabrication to provide the best in cargo drums.

Mahon's Industrial Equipment Division knows production finishing best. If you make cosmetic cases or appliances, bicycles or railroad cars, or any other metal product . . . and if quality comes first . . . call in Mahon. Improved finishing can be the easiest and most economical product improvement you'll ever make. New paints, new methods broaden the possibilities. Find out what the 'finishing touch' of Mahon can do with your products . . . your costs . . . your sales. Get in 'touch' with Mahon.

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• Finishing Systems • Metal Cleaning Equipment • Painting Facilities—spray, dip and flo-coaters • Drying and Processing Ovens • Special Plant and Production Equipment

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ALSO IN SWEET'S P. E. FILE

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Circle 244 on Inquiry Card for more data

Roll forming shapes like these is like automating a stamping plant...

"We think of these bins full of roll formed samples as *idea material*," Lou Colleran, Vice President-Sales explains. "Roll forming has limitations, of course, but it cuts out a lot of individual handling, punching, notching, drilling and embossing operations. *Not only can we roll a complex shape—we can pre-notch, pre-punch, and roll in lines, designs and decorations, all at the same time, in a single efficient forming operation.*" This, briefly, is the story of Roll Formed Products Co.

They work mostly with steel which is supplied by J&L in a variety of metallurgical grades, gauges and widths to meet the needs of a long list of customers.

Manufacturers of appliances, automobile parts, hardware, office furniture, metal partitions, electrical apparatus, business machines, shelving, and construction materials all save time and money by utilizing roll formed shapes.

Steel is basic to virtually all these roll formed products, and J&L consistently supplies the right steel in the right quantity at the right time. J&L can do the same for you.

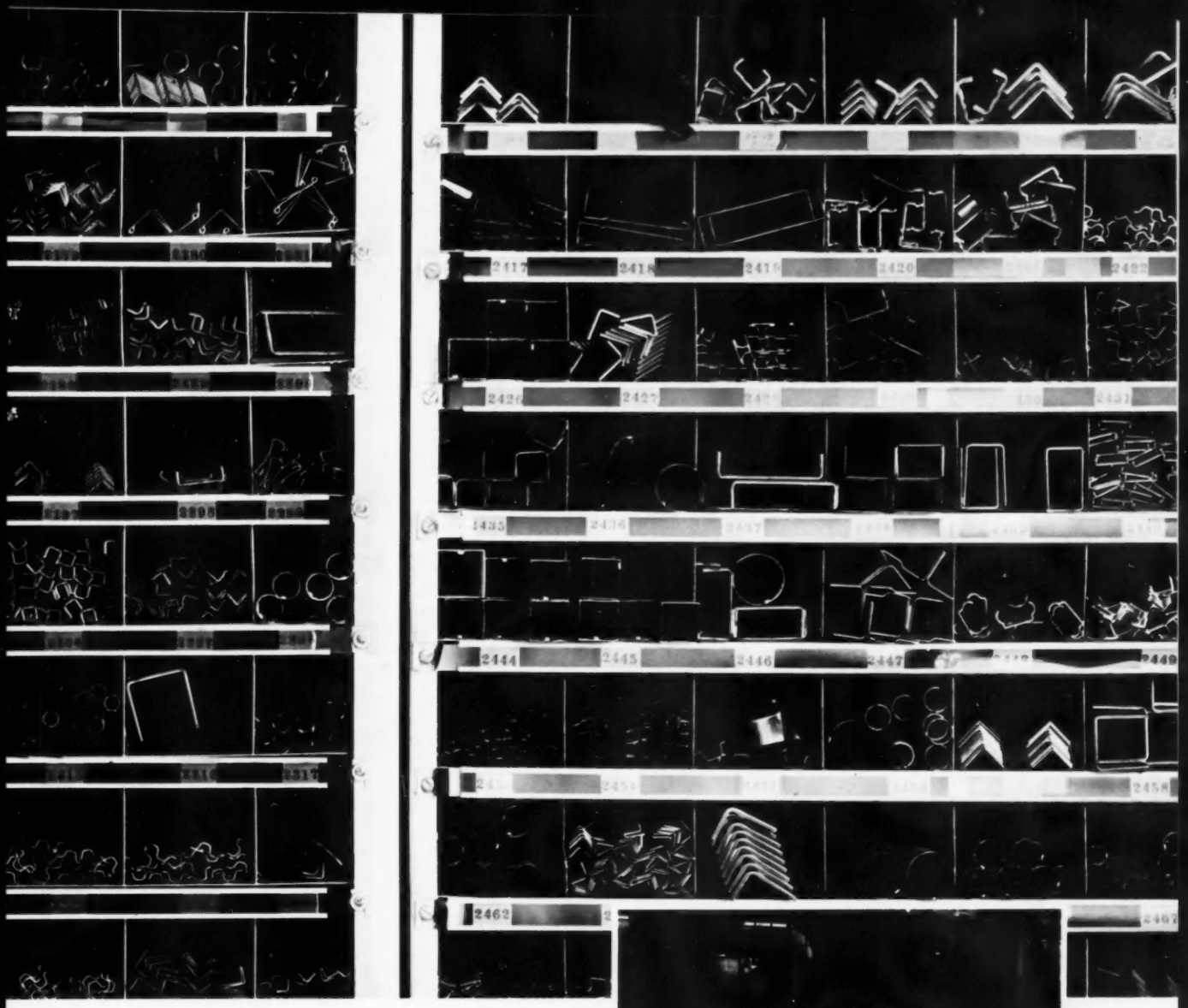
Ask your J&L representative to give you the facts.

J&L STEEL

Jones & Laughlin Steel Corporation
3 Gateway Center, Pittsburgh 30, Pennsylvania

This Steelmark identifies products made of steel. Place this mark on your products. And—look for it when you buy.

Steel



▲ **Thousands of roll formed shapes** are created by Roll Formed Products Co., Youngstown, Ohio, for use by appliance, automobile, hardware, office furniture, and construction materials manufacturers, and many others.

Roll Forming is a highly specialized art. In one continuous operation, the coil of steel passes through a series of rolls, is formed, notched, punched, cut to length, then stacked for transport to loading and shipping area. ▶

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Over 180 standard *FLEXIBLE SHAFT COMBINATIONS

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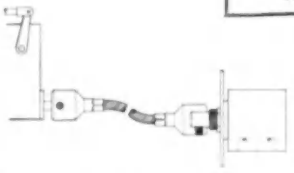
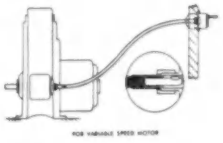
Experience to Design a *FLEXIBLE SHAFT Combination for Your Specific Application

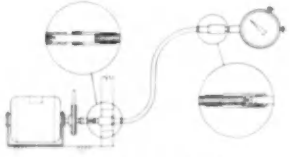
* All Circle Ess Flexible Shaft Combinations Available with Mono-Directional or Bi-Directional Cable



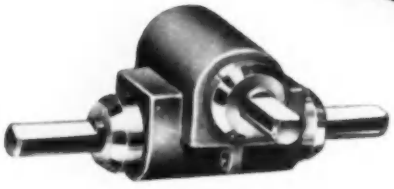
Circle Ess Standard used with Servo Motor



Circle Ess Standard used with Variable Speed Motor



Circle Ess Standard used with Hand Held Tachometer



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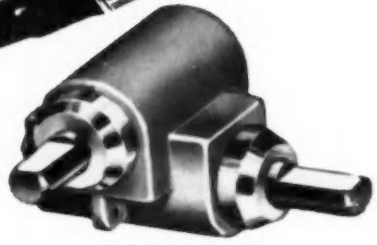
Plus
A Complete Line of Small Angle Drivers



Right Angle Drive

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MORE GOVERNMENT CONTRACT AWARDS

LATEST contracts awarded by various Government agencies, and covering primarily automotive and aviation products, are listed in the following. Typical of the items contained in these monthly listings are: passenger cars, motor trucks, aircraft, military tanks, engines, transmissions, other components spare parts, plant equipment, etc. This list is for the period Feb. 2 to Feb. 27, inclusive.

AMERICAN MOTORS CORP., Detroit, Mich.
Vehicles, 12 ea.—$16,886

BAKER INDUSTRIAL TRUCKS, A DIV. OF OTIS ELEVATOR CO., Cleveland, Ohio
Truck, fork lift, $235,076

CHRYSLER MOTORS CORP., Washington, D. C.
Sedans, 8 ea.—$16,221

CHRYSLER MOTORS CORP., Washington, D. C.
Station Wagons, 3 ea.—$6,109

CHRYSLER MOTORS CORP., Washington, D. C.
Trucks, various, 6 ea.—$29,303

CHRYSLER MOTORS CORP., Washington, D. C.
Vehicles, 1,378 ea.—$2,586,684

CLARK EQUIPMENT CO., INDUSTRIAL TRUCK DIV., Battle Creek, Mich.
Tractor, wheeled, 76 ea.—$167,913

CLARK EQUIPMENT CO., INDUSTRIAL TRUCK DIV., Battle Creek, Mich.
Truck, fork lift, 7 ea.—$65,142

CUSHMAN MOTOR WORKS, INC., Lincoln, Nebr.
3-wheel vehicles, 1,200 ea.—$1,063,200

DAVEY COMPRESSOR CO., Kent, Ohio
Engine, gasoline, 2 cylinder, 75 ea.—$31,350

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Trucks, various, 72 ea.—$156,170

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FORD MOTOR CO., GOV. SALES DEPT., Washington, D. C.
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STUDEBAKER - PACKARD CORP., South Bend, Ind.
Trucks, 7 ea.—$22,573

STUDEBAKER - PACKARD CORP., South Bend, Ind.
Vehicles, 2,039 ea.—$3,052,969

TOWMOTOR CORP., Cleveland, Ohio
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UNITED TRACTOR & MATERIALS HANDLING EQUIP. CO., DIV. OF UNITED BOILER HEATING & FOUNDRY CO., Hammond, Ind.
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UTAH SCIENTIFIC RESEARCH FOUNDATION, Logan, Utah
Snow vehicle, 1 ea.—$6,775

WILLYS MOTORS INC., Toledo, Ohio
Trucks, spare parts, 48 ea.—$92,683

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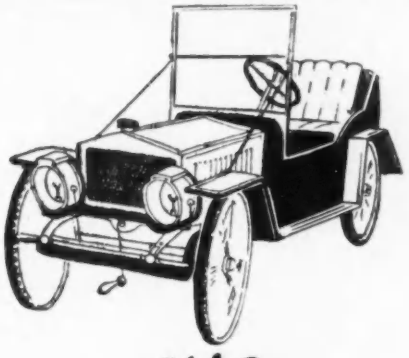

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Keykote 25 solutions operate in a low pH range (2.7 to 4.0) in one to six stage spray washers, immersion, or steam phosphatizing methods. Keykote 25 is a powdered phosphate composition and not an iron phosphate although it competes in that class. It embodies iron for ductility, zinc for galvanic protection, manganese for hardness, and ferromolybdate for passivity. The result is superior paint bonding and corrosion resistance at low cost.

For further information or Product Bulletin 12A, contact the nearest Kelite Office listed below.

U. S. Patent Nos. 2,557,509, 2,826,517 and 2,885,312. Others in process. Also patented in Canada, Australia and Great Britain.

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Circle 246 on Inquiry Card for more data

Reliability as it Pertains to a Foundry

By C. E. Drury
Director of Reliability

Central Foundry Division
GENERAL MOTORS CORP.
SAGINAW, MICH.

THE mathematical reliability of an assembly is the product of the mathematical reliability of its systems (or component parts). The mathematical reliability of a component part or system is computed by a formula utilizing a predetermined confidence factor and the results of actual operating or simulated operating tests of the parts or system functioning under "use" conditions. Of course, using this approach you can be as sure as you wish, based on the confidence factor you use, that your product will only be more reliable when the reliability of the parts is increased. Consequently, our foundry products are a definite factor in the customer's final product reliability rating.

Reliability effort encompasses the entire area from design concept to wear out. The foundry then becomes an integral part of the entire area and should concern itself with:

1. **Part design in regard to compatibility of design to foundry process.**
2. **Material and heat treatment specification in regard to the design meeting its functional specifications.**
3. **The entire process of purchasing and receiving material, melting, casting, heat treating, finishing and final inspection of the casting.**

After the part's specifications have been agreed upon, the entire reliability effort in the foundry is centered around the reliability of the various processes in meeting these specifications.

Therefore, the foundry differs somewhat in that the reliability concept is as applied to process. The customer's concept is truly a systems approach.

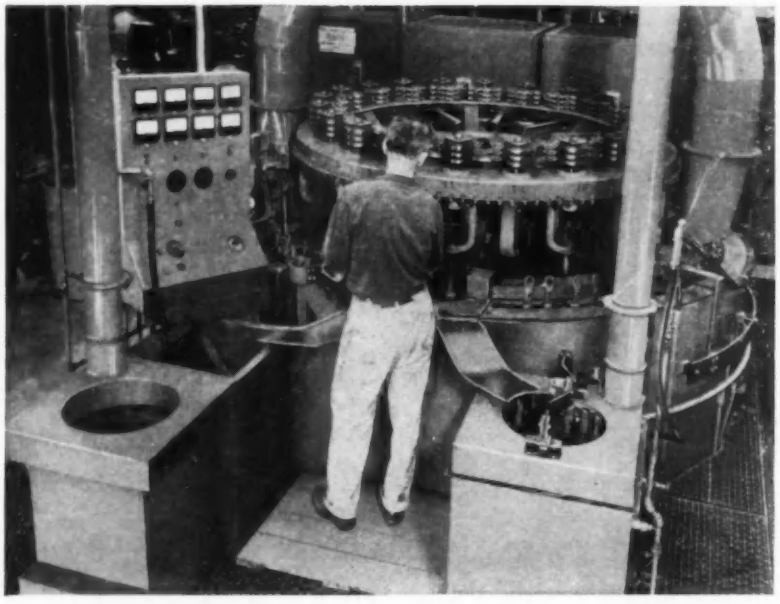
Since the success of any organization or program depends on the effective use of its human resources, the first element logically is:

Training and Communications—The objective is to develop and maintain a reliability attitude in all employes.

Research and Development—The objective in regard to reliability effort, is to develop better processes, process control devices, inspection devices and provide plant or customer services such as stress analysis, physical testing, etc.

Pre-production Engineering Control—The objective is to:

1. **Become a consultant to the customer's design engineer during prototype part design in order to have compatibil-**



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Better than ever! For example, within the past year we have put into operation the most advanced types of high precision lathes designed to turn and bore simultaneously with exceptional accuracy. Newly developed finish-turning lathes and gap-sizing machines have been added. And, within the past several months, we have placed in operation the most modern chrome plating equipment of any American piston ring company (shown above). This machine is automatic and greatly increases Pedrick's capacity to make the highest-quality chrome rings in volume.

The constant addition of the latest types of production equipment plus our 40 years of experience enables Pedrick to deliver the highest quality rings for both original equipment and service requirements.

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WILKENING MANUFACTURING CO.
433 New Center Bldg., Detroit 2
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New 200 to 2500 GPM Vacu-Matic Filter Sets Maximation Records

MAXIMATION — the science of obtaining maximum production in machining and grinding operations while simultaneously paring costs has received fresh and new impetus with the development of the Hoffman Hi-Flo Vacu-Matic filter capable of handling water soluble oil coolants in quantities from 200 to 2500 GPM. The new Hoffman Hi-Flo Vacu-Matic filter provides a record 20 to 50% savings in grinding wheels, honing stones, broaches and other edge tools and is a significant forward step in modern metal working techniques. Basis of development is long experience with 40, 60, 80 and 120 GPM filters.

Dirty Coolant Responsible

Metal chips, solid abrasives, grit and dirt or fine particles in coolants are invariably responsible for below rated capacity performance of grinding and finishing machines. Dirty coolant means shorter useful tool, wheel, coolant life—more rejects, higher maintenance, material, labor costs—frequent down time for tool sharpening, in-the-machine-adjustments and sump cleaning. The new high capacity Vacu-Matic filter handling flow rates from 200 to 2500 GPM has been designed and engineered by Hoffman to solve the dirty coolant problem.

Positive Filtration

Filter medium for the new Vacu-Matic is a special low cost, easily replenished paper on which solid particles are deposited. Coolant is drawn through the filtering paper by negative pressure with the dry sludge remaining on top of the paper. When sludge reaches a preset thickness, the filter paper is automatically indexed by a pressure differential switch and new paper moved over the vacuum area. Water-free sludge and spent filter paper drop off into their respective tote boxes for easy disposal.

Design and Engineering

The Vacu-Matic is simple in design — virtually trouble-free in operation—and suitable for all grinding and machining operations using water soluble oil coolants. Operation is entirely electrical and continuous. *There are no fussy solenoids, air cylinders, intricate inter-locking control valves, etc. Paper is indexed automatically.* Shut-off of dirty coolant through the filter is unnecessary. Since "plugging" of the filter areas by hydraulic or trampoils has been eliminated, coolant flows continuously. Separation of spent filter paper, sludge and chips is entirely mechanical. Through the process of aeration, coolant temperature remains constant at ambient room temperature or below. Coolant sweetness precludes the possibility of bacteria growth. Another design feature is the reduction of the service tank requirement. Gravity feed of dirty coolant to filter is possible where plant layouts permit.

Numerous Competitive Advantages

The use of the Vacu-Matic filter in grinding and machining operations makes it possible to obtain numerous competitive advantages that add up to higher speeds, faster feeds and better finishes. Among them are:

- Removal of all chips, abrasives, dirt and other contaminants with an overall efficiency of 98%.
- Virtual elimination of down time.
- Protection against loading of grinding wheels.
- A four times greater cake than obtainable by conventional gravity flow through the paper.
- Nominal filter paper costs.
- Delivery of dry sludge without coolant carry-over.
- Minimization of coolant loss.
- Automatic and self-cleaning operation.
- Improved working environment.
- Reduction in maintenance costs.
- Longer useful life of equipment, oils, coolants.

Without cost or obligation, Hoffman engineers will provide data on filtering equipment to suit your needs. Their recommendations are based on the nature of the task and long experience in the improvement of manufacturing technology. To check on the use of the new Vacu-Matic filter and how it will pay for itself in your plant, send for the free Vacu-Matic Bulletin FB 107 . . . Write Dept. LR, U.S. Hoffman Machinery Corp., Industrial Filtration Division, P.O. Box 214 Thompson Road Plant #1, Eastwood Sta., Syracuse 6, New York.

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ity between part and foundry capabilities.

2. Learn specific foundry manufacturing processes, tooling and equipment limitations through pilot runs and capability studies on a given part under consideration.
3. Transmit the findings of #2 to the customer's design and tooling engineers in a design review to strive for the optimum in relation to the part's design function, castability and other foundry processes.
4. Establish manufacturing process procedures and controls prior to production runs that will result in meeting the part's specifications.

Incoming Material Control—The objective is to effectively control the material used in the product and in the manufacturing process to maintain process and product specifications.

In Process Control (Quality Control—The objective is to effectively control the various manufacturing processes within limits that are known to produce castings within customer's specifications. *Process procedures, limits and controls should be established during pre-production runs and changed only after verifying the results.*

Final Quality Level Control—The objective is to effectively control the quality level of castings being shipped to the customer within the pre-determined acceptance specifications. This should be done through the use of military sampling techniques for all parts, and in the case of critical parts, 100 per cent low cost nondestructive testing, such as sonic testing, may be used for specific defects.

Customer Follow-up—The objective is to provide the plant with prompt feed-back on their performance at the customer level in order to effectively maintain good customer relations by meeting purchasing specifications in regard to quality and delivery.

Evaluation—The objective is to systematically review the results of the overall reliability program in order to effectively direct the reliability effort to avoid losses, excessive costs and satisfy customers.

The first element I wish to dis-

Circle 249 on Inquiry Card for more data

cuss in more detail is Training and Communications with the objective of developing and maintaining a reliability attitude in all employes. Many of our organizations have some sort of training for our employes. I believe that our effort may have been to increase knowledge and skill resulting in improved ability, rather than to strive to make our employes interested and attempt to improve his attitude such that he is properly motivated to use his ability. Ability plus motivation, or desire to do a good job, will result in reliable performance on the part of all employes.

Each person, as he performs his daily task, must be conscious of reliability, conscious of the fact that the way he does his job affects reliability. Each employe must know that almost anything is less costly than a customer's complaint. Today a buyer can take his choice of various companies' products; it is a buyer's market. A buyer will only purchase reliable products that are commensurate in cost and advertised performance. Employes must know through training and communications that the degree of reliability of his company's products affects him. High reliability makes his livelihood secure and increases his opportunities.

The second element I want to elaborate on is pre-production engineering control. This is a most important phase of a reliability program. I had the opportunity to review reliability programs of many organizations; they all had one major objective, and that is to spend more time and money in preventing defects or scrap in order to eliminate the high cost of inspecting for quality and to improve their products' reliability. Consequently, they had to improve their engineering design evaluation, improve their prototype testing programs and improve their pilot production facilities. It becomes mandatory that the design engineer, the process engineer and the manufacturing management have more confidence in knowing that the design will meet the parts' functional requirements, that the design and its necessary specifications are compatible with process, manufacturing tooling and manu-

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HYPOID—Sizes from 1½" to 28" dia.

ZEROL—Sizes from 16 pitch, 1½" dia., to 1½ pitch, 21" dia.

WORMS AND WORM GEARS—Worms to 7" dia. Worm gears to 36" dia.

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facturing equipment capabilities.

Therefore, the foundry has a very important responsibility in taking part in the customer's design evaluation. The foundry must do a good job of analyzing specifications and determining capabilities of their tooling, equipment and processes to verify the probability of meeting the specifications. ■

The foregoing article is an abstract of a paper presented by the author at the American Foundrymen's Society Wisconsin Regional Conference, Milwaukee, Feb. 10, 1961.

New Direct Current Supply for Engine Starting Motors

A NEW device has been developed to replace the storage battery for starting engines in stationary applications. A silicon rectifier, used in conjunction with a transformer, forms the basis for the system. It takes alternating current, transforms it into lower voltage, higher amperage current, and a full wave rectifier provides direct current for use by the starting motor. Transformer design offers flexibility in meeting numerous application requirements.

Normally, the design duty cycle for the starting motor is one of an intermittent nature, being about minute per hour rating. This, of course, could mean one start lasting one minute once each hour, or it could mean several starts where total running time would be one minute for each hour. The "transtarter system" is designed to handle more than this.

The wattage loss in the silicon rectifier is worthy of note. Each cell has a nominal voltage drop of about 1.0 volts, and a four cell arrangement produces about 70 watts loss per cell when 300 amp direct current flows. The cells are usually mounted in the heavy iron section of the transformer, which provides an adequate heat sink for the intermittent ratings.

Basic circuit components to form the new system are housed in an 8 in. by 10 in. enclosure for the transformer and rectifier. The circuit is initiated by a pushbutton and relay. Figure 1 illustrates the

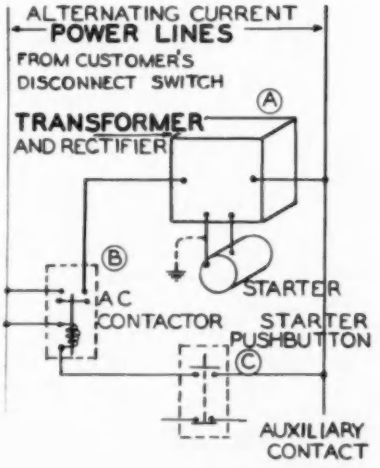

Fig. 1—Items A, B, and C above form "transtarter control system."

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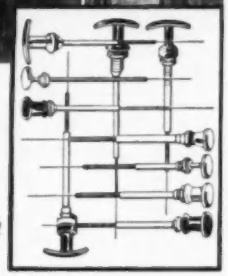

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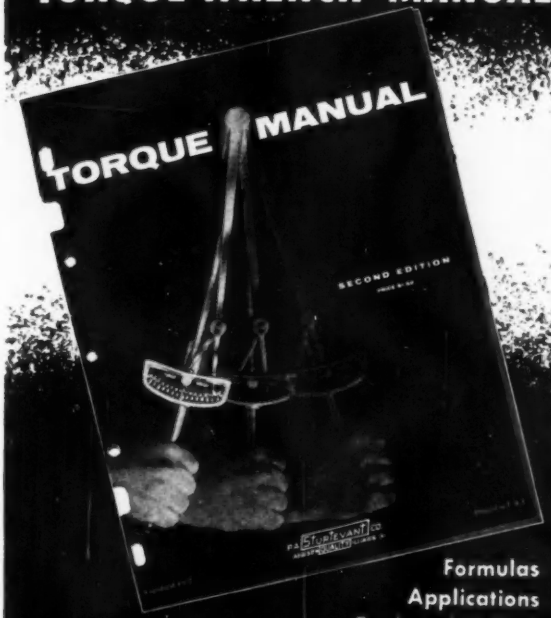

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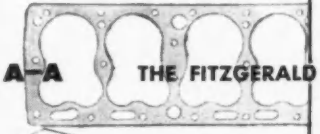

A—A THE FITZGERALD MANUFACTURING CO.
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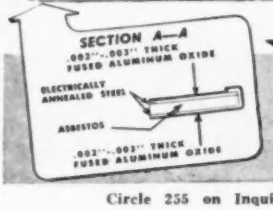

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SINCE 1906

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various components which are connected to the regular alternating current power lines.

It is recommended that a 240, 480 or 600 volt supply be used for operating the Transtarter. This service voltage is available in any plant or shop having over five hp in rotating equipment. A line voltage drop of five to eight per cent on the inrush of 25 amp on 240 volts, or 13 amp on 480 volts, is satisfactory for good operation, with the voltage measured at the Transtarter control unit terminals.

The use of electrical contacts in the low-voltage, high-current leads has been eliminated by locating the starter pushbutton in the high voltage side of the system. The starter pushbutton leads may be run for a considerable distance if necessary. Where engines are used in close proximity to each other, the system can be used to start more than one engine. The only precaution necessary is that only one engine be started at a time. This can be insured by the use of a normally closed auxiliary contact of the start pushbutton being wired into the starting circuit of the companion.

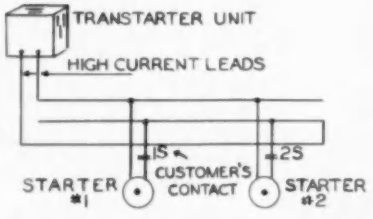
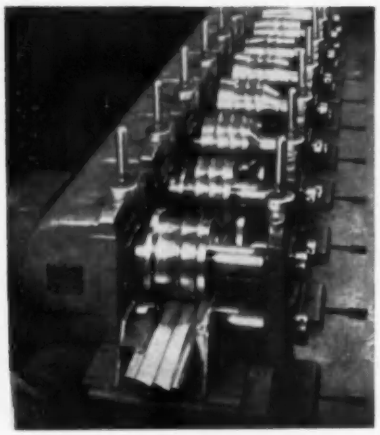


Fig. 2—Selective contact 15 or 25 closes when item "C" closes (See Fig 1). This permits one system to operate more than one starter.

Thus, when a pushbutton is being held down, it is not possible to operate any other starters until the button is released.

With the usual two-leads feeding several starters, the voltage drop in the cables could be more noticeable at the engine at the end of the line. To minimize this affect, the leads can be routed as shown in figure 2. By this scheme the lead length to all units is the same. ■



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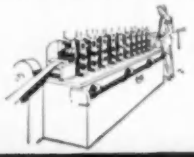

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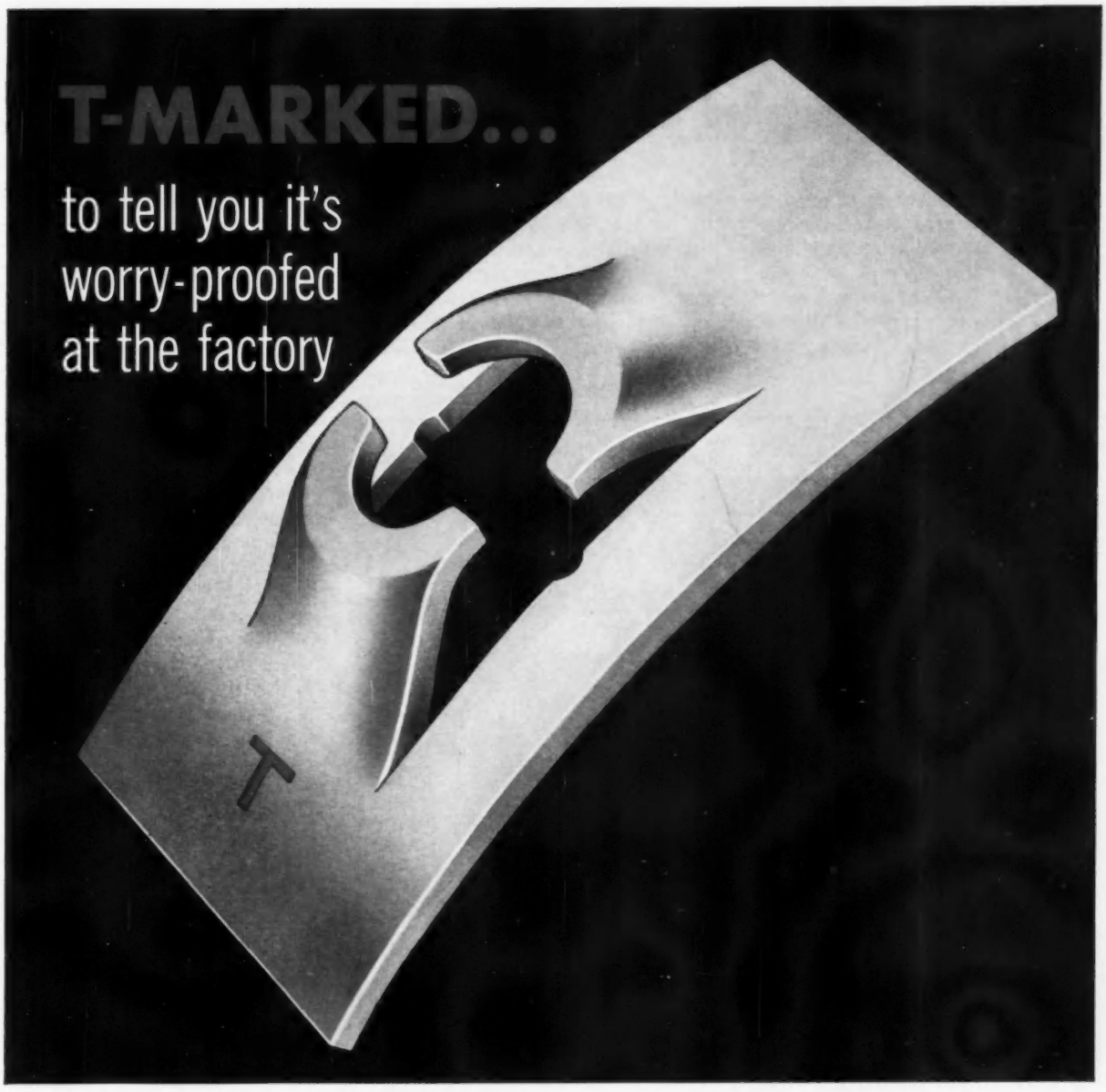

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Over thirty-five years of Tinnerman experience as the originator and largest producer of spring-steel fasteners...the leader in solving your fastening problems,

Outstanding fastener design and production experience that assures you the best possible design of SPEED NUT, whether it is a special SPEED NUT or one of the 10,000 SPEED NUT brand fasteners presently available,

Stringent control of SPEED NUT quality from coil strip to you, including die design, production, heat treatment and finishing.

Be sure you specify "Tinnerman T-marked SPEED NUTS" that give you better fastening, that cut parts and assembly costs, that never let you or your customer down. *Tinnerman Products, Inc., Dept. 12, Box 6688, Cleveland 1, Ohio.*

TINNERMAN
Speed Nuts®
Look for the Tinnerman "T"

Circle 258 on Inquiry Card for more data

High Alloy Castings In Truck-Installed Gas Turbine

To solve the problem of high temperature, corrosive combustion products, and high stress that are inherent in vehicular gas turbine engines, engineers of the Allison Division of General Motors Corp., Indianapolis, have made use of high alloy castings in the design of GMT-305 Whirlfire regenerative gas turbine engine.

The GMT-305 is a multi-fuel engine, designed to burn practically any of the normal types of fuel associated with internal combustion operation—gasoline, kerosene, or the heavier Diesel fuels. It develops a rated horsepower of 225, which is more than double the output of a comparably sized piston engine and approximately 70 per cent more power per pound of weight. Such a high concentration of power in a small, lightweight unit means that every working part is highly stressed, operating temperatures in the combustion zone are high (1600-1700 F), and the products of combustion are corrosive.

To handle this combination of extreme operating requirements in such a concentrated unit, castings made of SAE 60347 alloy (Alloy Casting Institute designation CF-8C) are used for six important components in the Allison engine. These are the transition liner support, gasifier turbine casing, engine bulkhead, turbine nozzle housing and support, and upper and lower bulkhead extension.

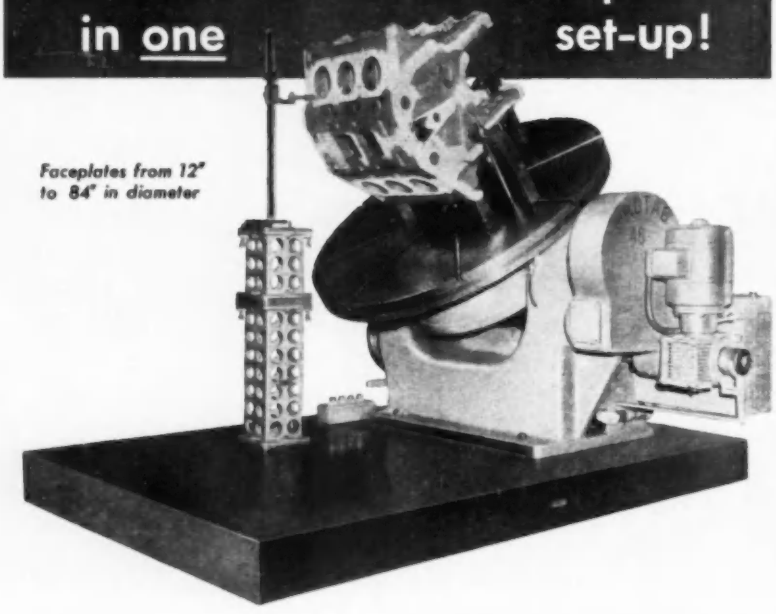
These parts vary in size from an 11½-in. OD ring, with ¾-in. by 2-in. cross-section, to a 24-in. square bulkhead, with a ¼-in. wall thickness. They range in weight from 4¼ to 54½ lb.

The location of these castings in the hottest sections of the engine and their function to confine and utilize extremely hot combustion gases points up the necessity of using a metal having good temperature and corrosion resistance characteristics while, at the same time, having sufficient strength and other physical properties to withstand the high thermal and mechanical stresses encountered.

Why High Alloy Castings

The operating cycle and design principles peculiar to the gas turbine make maximum demands on the materials of construction. One of the most critical mechanical requirements of this particular application is that the material of construction have high creep strength. For CF-8C alloy the limiting creep stress (for a (0.0001% hr creep rate) is about 18,000 psi at 1200 F—well above the maximum requirement. Long time stress corrosion is another problem that is further aggravated by the multi-fuel versatility of the engine. Changeover from one fuel to another without purging is a

Dimensional check on 7 planes in one set-up!



Up to 50% savings in time and manpower

Every angle, diameter, line, critical surface on 7 V-block planes is completely checked without disturbing the initial set-up. Previously a two-man operation . . . now, with motor-powered, push-button tilting and rotation offered by the ROTAB precision positioning table, one man quickly, accurately runs the entire inspection in about half the time. This is how ROTAB is paying off for a major diesel engine manufacturer . . . ROTAB will pay off for you, too. Write for details.

MP MACHINE PRODUCTS CORPORATION
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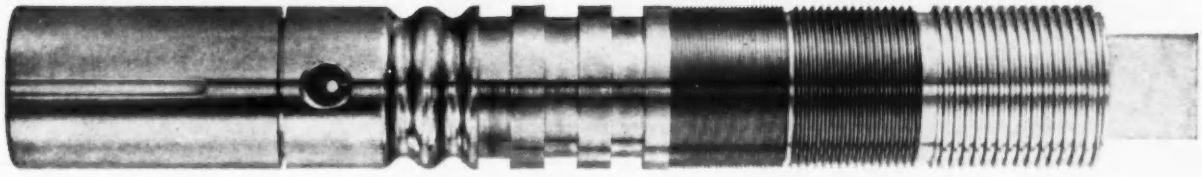
THEY LAUGHED WHEN WE SAT DOWN TO PLATE...

they didn't know about KANIGEN®



This shaft was turned. It was key-slotted, drilled, tapped and shouldered. It was threaded, milled, grooved and chamfered. It was step-bored, with three inside diameters. Who could plate a piece like this all over—inside and out—and expect a uniform coating?

Well, anyone who used KANIGEN® could expect it—and get it. In fact, we made this piece especially to prove it.

The KANIGEN® process for chemical nickel alloy plating produces a uniform thickness of coating, regardless of the contours of a part. This uniformity permits full machining operations prior to coating, with no subsequent cleanup.

KANIGEN® offers corrosion resistance equal or superior to that provided by wrought or electrolytic nickel.

For complete technical details write or call your nearest General American office. Ask for Kanigen Bulletin No. 258. You'll find that with plating as in so many other industrial areas, *it pays to plan with General American.*

Kanigen Division
GENERAL AMERICAN TRANSPORTATION CORPORATION
135 South LaSalle Street • Chicago 3, Illinois
Offices in principal cities

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very desirable operating freedom, but with a wide divergence of chemical elements present in the several applicable fuels, the corrosive products of combustion vary over a broad range. Overcoming these deteriorating factors, together with the destructive forces of high heat and pressure differentials, demands an alloy that is tailor-made specifically to handle them.

Type CF-8C is an iron-base, columbium-stabilized, chromium-nickel alloy especially formulated to resist corrosion in services involving long exposure to elevated temperatures. Castings of this alloy have good machinability and weldability, high hot strength and, as previously mentioned, a limiting creep stress well above working requirements. Chemical composition of the alloy is as follows: C 0.08 max., Mn 1.50 max., Si 2.00 max., Cr 18-21, Ni 9-12, Cb 8 x C min-1.0 max.

In the solution heat treated condition CF-8C has an essentially austenitic structure. When exposed to temperatures in the 800-1600 F range for long periods, columbium carbides are precipitated instead of chromium carbides; this circumstance prevents the depletion of chromium along the grain boundary network and the alloy, therefore, is protected against intergranular corrosion attack.

The most important properties from a manufacturing standpoint are good castability, machinability and weldability. From the functional point of view, warpage due to heat and pressure differentials, creep stress limit because of the high temperatures under which the metal operates, and corrosion resistance must be considered. Combining these requirements with the economics of production costs tipped the decision in favor of CF-8C castings.

Severe Heat, Pressure and Corrosion

One of the hottest parts of the engine is the bulkhead, which operates at a metal temperature of 1300 F. As the name implies, it is a partition wall that separates and seals the gasifier section from the power turbine section. Subjected to the highest heat, it also suffers most from distortion caused by the pressure differential of two atmospheres between one side of the wall and the other, and from warpage tendencies created by heat and pressure. Pressure on the gasifier side of the bulkhead is 3½ at-

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STEEL BLUE
Stops Losses
making Dies and Templates
DYKEM STEEL BLUE
SPECIMEN
With DYKEM Steel Blue
Without DYKEM Steel Blue
Popular package is 8-oz. can fitted with Bakelite cap holding soft-hair brush for applying right at bench; metal surface ready for layout in a few minutes. The dark blue background makes the scribed lines show up in sharp relief, prevents metal glare. Increases efficiency and accuracy.
Write for sample on company letterhead
THE DYKEM COMPANY
2301L North 11th St. • St. Louis 6, Mo.

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END NIGHT CLEANUP & MORNING REBLUING

DYKEM HI-SPOT BLUE No. 107 is used to locate high spots when scraping bearing surfaces. As it does not dry, it remains in condition on work indefinitely, saving scraper's time. Intensely blue, smooth paste spreads thin, transfers clearly. No grit; noninjurious to metal. Uniform. Available in collapsible tubes of three sizes. Order from your supplier. Write for free sample tube on company letterhead.

THE DYKEM CO., 2301-L NORTH 11TH ST., ST. LOUIS 6, MO.

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Mono Cord
NO SPLICE RINGS
are better because the principle hazard found in ordinary seal rings and belts has been removed by Western's Mono Cord one-piece construction. In addition, dimensional requirements are maintained, quality controlled, and service vastly improved—all at no extra cost.
Don't use a spliced ring for technical seal applications, but profit from nearly 60 years experience—specify Mono Cord rings by Western.
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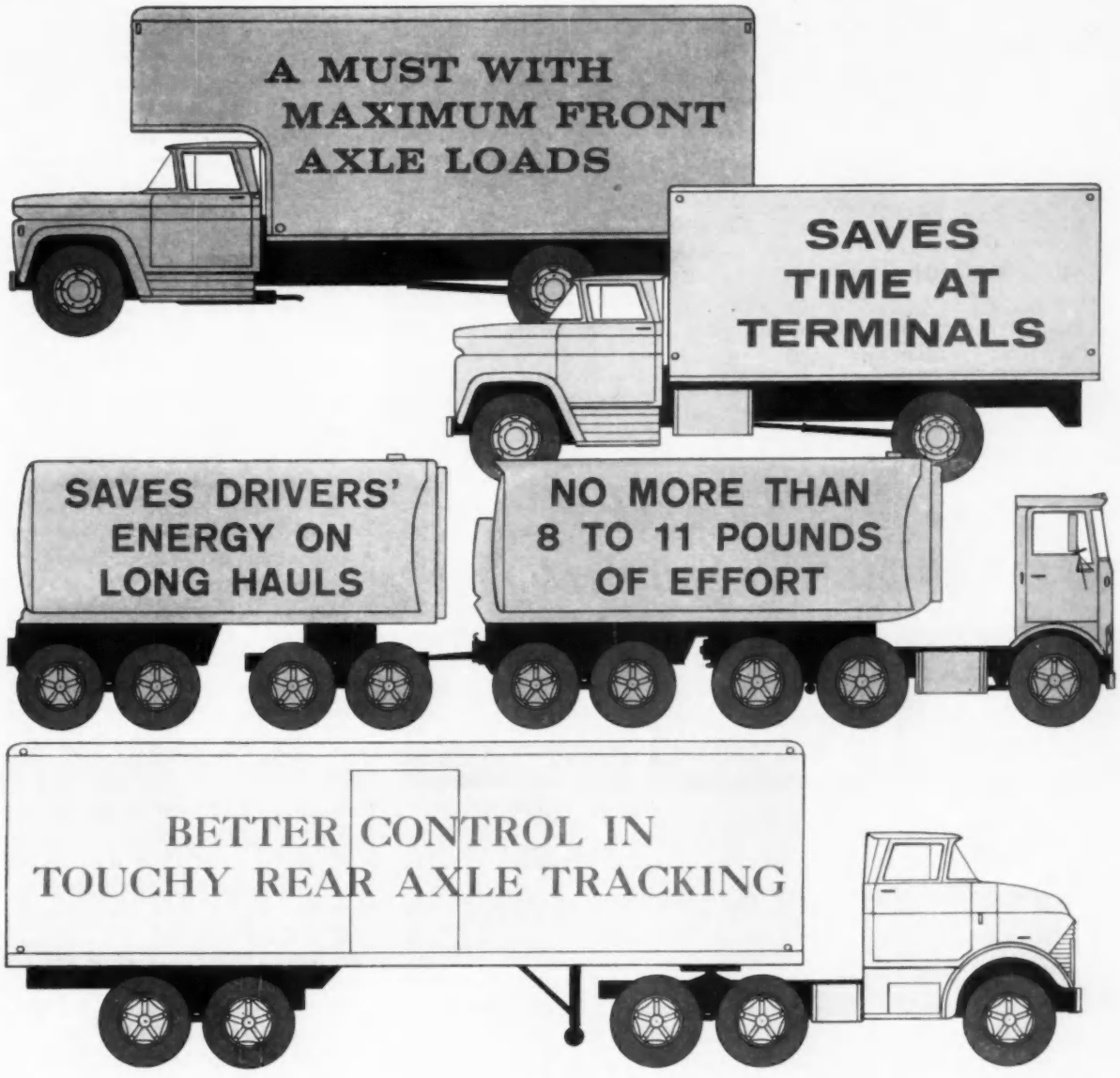
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SAVES TIME AT TERMINALS
SAVES DRIVERS' ENERGY ON LONG HAULS
NO MORE THAN 8 TO 11 POUNDS OF EFFORT
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SIDE-VIEW STORY OF A SAFER FLEET WITH ROTARY VALVE POWER STEERING

Rotary Valve Power Steering is a must when fleet rigs carry punishing front axle loads, on twin screw tractors, with normal and abnormal rear axle spreads. Power steering supplies a BIG answer for greater safety, time savings, increased driver efficiency, and better long-term profit results on over-the-road operations. Rotary Valve Power Steering is available on all GMC and Chevrolet trucks two ton and over.

Saginaw

SAGINAW STEERING GEAR DIVISION • GENERAL MOTORS CORPORATION • SAGINAW, MICHIGAN

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mospheres, immediately dropping to 1½ atmospheres on the power side. The same heat-pressure condition causes flexing of the bulkhead wall which, together with the structural stresses induced by warpage, builds up a further consideration of the fatigue limits of the metal.

Redesigned for Casting

As a result of protoype testing, drastic design changes were made in the bulkhead assembly. Formerly, it was fabricated of sheet metal sections, fitted and welded together. Upwards of 20 separate pieces of chromium-iron sheet of the 400 series stainless steel were welded to make a high cost assembly that was far from satisfactory. Evidences of rapid intergranular corrosion hastened the decision to redesign for casting, and to use a corrosion resistant alloy. The result is an assembly composed of only three CF-8C castings. The bulkhead has a considerably improved appearance and is produced at much lower cost. The bulkhead casting is a complex cylindrical segment that requires close tolerance machining to provide mating or matching surfaces. The box-like upper and lower bulkhead extension castings also require considerable precision machining.

The gasifier turbine casing operates in close proximity to hot combustion gases at a metal temperature of 1300 F. For economic life under these conditions, Type CF-8C alloy provides the necessary hot strength and corrosion resistance. Although the casting is a simple ring shape, a large portion of it must be machined to match and fit other castings and components. Good castability and machinability of the alloy make a substantial contribution to economical production of the entire assembly.

The transition liner support, on the gasifier side of the bulkhead, is in a slightly cooler zone although its operating temperature of 1200 F makes high temperature demands on the metal. The casting is complex as well as one of the heavier ones (13¼ lb finished weight). Precision machining throughout again emphasizes the importance of good machinability of turbine castings.

While the gasifier nozzle support operates at the relatively low metal temperature of only 600 F, there remains the problem of material selection from the standpoint of long exposure to temperatures that are consistently higher than "average." The 600 F metal temperature appears low only in comparison with higher ones so prevalent in the engine. This casting is one of the simplest (a ¾-in. thick disk) and one of the lightest parts (4.3 lb finished). However, its functional use calls for high hot strength and resistance to the hot, corrosive gases.

Proved Performance

Several months ago the Whirlfire was installed in a truck used to haul nickel ore at an open pit mine at Copper Cliff, Ontario. This is the first time that gas turbine power has been used to haul a 32-ton load over a road winding up-

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Cost Little--Assemble Fast--Hold Tight!

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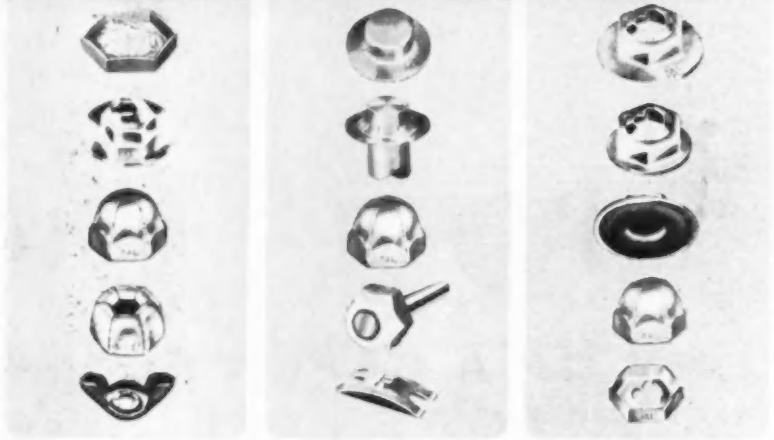

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Whether or not the gas turbine makes a serious entry into the automotive field, it has long since proved itself in turbojet and turboprop aircraft, in many commercial power applications, and now as a truck engine. It is advantageously competitive in fuel consumption with the gasoline reciprocating engine, while lubricating oil consumption is practically negligible. ■

Special Assembly Line For Imperial, Chrysler

Chrysler Corp. is building a special assembly line in the Jefferson Ave. plant to handle both the unit body of the Chrysler and body and frame design of the Imperial.

Reported to be the only line of this dual purpose type, the adaptation was made necessary when Imperial shifted its facilities to the Chrysler production plant.

When in operation, the new assembly line will produce two different cars with no interchangeability of body parts. Imperial production on the new line is scheduled for the first week in May.

Crash Injury Grant

A grant of $175,000 to the automotive crash injury research program of Cornell University has been announced by the Automobile Manufacturers Association. The award to Cornell is in addition to the $1,706,000 already contributed by AMA in the 1960-61 fiscal year to promote traffic safety.

Cornell's program, which began in 1953, involves the statistical analysis of traffic accident data to determine the nature of passenger injuries and their relationship to vehicle design and accident configuration.

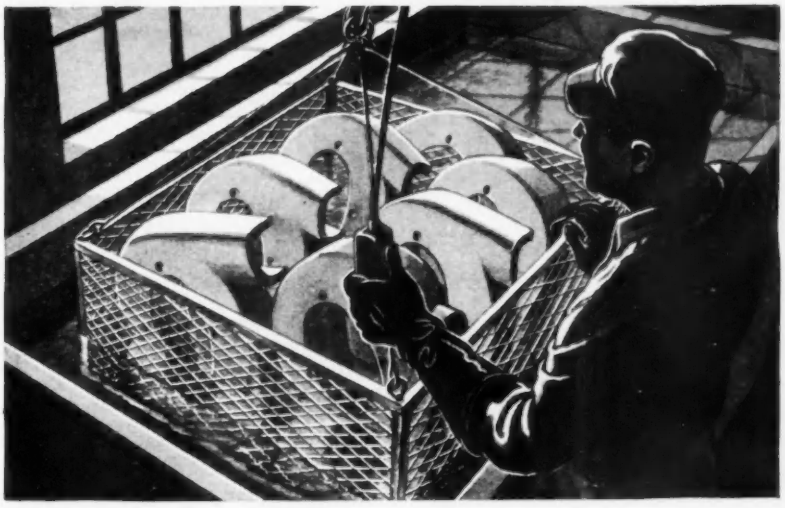
AMA Director

Charles F. Moore, Jr., has been named a director of the Automobile Manufacturers Association, filling the vacancy created when Ford president Robert S. McNamara resigned to become Secretary of Defense. Mr. Moore is vice president in charge of advertising and public relations at Ford Motor Co.

To prevent corrosion and anchor paint on aluminum

ask Oakite

OVER 50 YEARS CLEANING EXPERIENCE • OVER 250 SERVICE MEN • OVER 160 MATERIALS



Protect aluminum at lowest unit cost with CHROMICOAT conversion coatings

Oakite CHROMICOAT is an economy any way you look at it: on the basis of price alone . . . on solution make-up and "mileage"...on the way it blocks corrosion and forms a perfect anchor for paint to keep your customers sold and satisfied.

This is a conversion coating you can depend on. Oakite ChromiCoat protects for hundreds of hours under the ordeal of salt-spray tests . . . and surpasses MIL-C-5541 specs *several times over!*

And the Oakite process is simplicity itself. No control problem. A thin, golden, uniform coating every time.

ChromiCoat is just one of a line of more than 30 Oakite materials designed especially for aluminum. There are etch and non-etch cleaners . . . barrel finishing compounds . . . safe paint strippers . . . forming lubricants.

For more information, ask your local Oakite man or write to Oakite Products, Inc., 45B Rector Street, New York 6, N. Y.

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over 50 Est. 1909 SCIENCE years' leadership in industrial cleaning

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DIRECTORY OF MANUFACTURERS

(Continued from page 260)

TRUCKS (Continued)

DUPLEX Div., Warner & Swasey Co., Lansing 4, Mich.
FABCO, see F.A.B. Mfg. Co.
F.A.B. Mfg. Co., Oakland 8, Calif.
FORD Div., Ford Motor Co., Dearborn, Mich.
FWD Corp., Clintonville, Wis.
Freightliner Corp., Portland 11, Oregon.
KENWORTH Motor Truck Corp., Seattle 14, Wash.
MARMON-HERRINGTON Co., Inc., Indianapolis 7, Ind.
OSHKOSH Motor Truck, Inc., Oshkosh, Wis.
PETERBILT Motors Co., Newark, Calif.
REO Div. of White Motor Co., Lansing 20, Mich.
STUDEBAKER Div., Studebaker - Packard Corp., South Bend 27, Ind.
WALTER Motor Truck Co., Ridgewood, L. I., N. Y.
WARD LA FRANCE Truck Corp., Elmira Heights, N. Y.
WHITE-FREIGHTLINER, see Freightliner Corp.
WILLYS Motors Inc., Toledo 1, Ohio.

INTEGRAL BUSES

For details of their products see pages 140-141.
CROWN Coach Corp., Los Angeles 21, Calif.
FLXIBLE Co., Coach Div., Loudonville, Ohio.
FLXIBLE-TWIN COACH, see Fixible Co.
GMC Truck & Coach Div., General Motors Corp., Pontiac 11, Mich.
SOUTHERN COACH Mfg. Co., Inc., Evergreen, Ala.

DIESEL ENGINES FOR DIESEL-ELECTRIC LOCOMOTIVES

For details of their products see page 141.
ALCO Products, Inc., Schenectady 5, N. Y.
COOPER-BESSEMER Corp., Mt. Vernon, Ohio.
ELECTRO-MOTIVE Div., General Motors Corp., La Grange, Ill.
FAIRBANKS, MORSE & Co., Chicago 5, Ill.

GASOLINE ENGINES

For details of their products see pages 162-171.
ALLIS-CHALMERS Mfg. Co., Milwaukee 1, Wis.
ARNOLT Corp., Warsaw, Ind.
Burmeister & Wain American Corp., Mystic, Conn.
BRENNAN Motor Mfg. Co., Syracuse 2, N. Y.
B & W LATHROP, see Burmeister & Wain American Corp.
CHEVROLET Motor Div., General Motors Corp., Detroit 2, Mich.
CHRIS-CRAFT Corp., Algonac, Mich.
CHRYSLER Corp., Marine & Industrial Engine Div., Detroit 31, Mich.
CLIMAX Engine Mfg. Co., Clinton, Iowa.
CONTINENTAL Motors Corp., Muskegon, Mich.
CRUSADER Marine Div., Cal Connell Cadillac Corp., Warren, Mich.
Dearborn Marine Engines, Inc., Madison Heights, Mich.
DODGE Division, Chrysler Corp., Detroit 31, Mich.
FORD Div., Ford Motor Co., Dearborn, Mich.
GMC Truck & Coach Div., General Motors Corp., Pontiac 11, Mich.
GRAY MARINE Motor Co., Detroit 7, Mich.
HERCULES Motors Corp., Canton 2, Ohio.
HERCULES-HALL-SCOTT, see Hercules Motors Corp.
INTERCEPTOR, see Dearborn Marine Engines, Inc.
INTERNATIONAL Harvester Co., Chicago 1, Ill.
MACK Trucks Inc., Plainfield, N. J.
MINNEAPOLIS-MOLINE Co., Hopkins, Minn.
OLIVER Corp., Charles City, Iowa.
PALMER Engine Co., Cos Cob, Conn.
RED WING Marine Corp., Red Wing, Minn.
REO Div., The White Motor Co., Lansing 20 Mich.
ROILINE, see Waukesha Motor Co.
SEAGRAVE Corp., Columbus, Ohio.
STERLING Engine Co., Inc., Menominee, Mich.
STUDEBAKER - Packard Corp., South Bend 27, Ind.
UNIVERSAL Motor Co., Oshkosh, Wis.
WAUKESHA Motor Co., Waukesha, Wis.
WILLYS Motors, Inc., Toledo 1, Ohio.
WISCONSIN Motor Corp., Milwaukee 46, Wis.
WITTE Engine Works, Oil Well Supply Div., United States Steel Corp., Kansas City 26, Mo.

DIESEL ENGINES

For details of their products see pages 172-179.
ALLIS-CHALMERS Mfg. Co., Milwaukee 1, Wis.
AMERICAN MARC, Inc., Inglewood, Calif.

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FLUID LINE
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or
DISCONNECTION

with
INSTANT
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or
SHUT-OFF

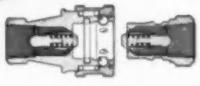
HANSEN
SERIES HK® QUICK-CONNECTIVE
TWO-WAY SHUT-OFF
COUPLINGS

Hydraulic and pneumatic lines are quickly and easily connected with Hansen Two-Way Shut-Off Couplings. No tools required.

When coupling is disconnected, valves contact valve seats in both Socket and Plug to provide instant and positive seal of fluid in both ends of line. Coupling does not depend upon line pressure to seal either end of line.

Hansen Series HK Couplings are furnished in steel or brass, with female pipe thread connections from 1/8" to 1 1/2" respectively. Sizes up to 1" are also now available in stainless steel.

Representatives in Principal Cities ... See Yellow Pages



Instantly shuts off both sides of line... prevents loss of liquid, gas or pressure.

Quick-Connective Fluid Line Couplings for
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OXYGEN • ACETYLENE
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Here is an always ready reference when you want information on couplings in a hurry. Lists complete range of sizes and types of Hansen One-Way Shut-Off, Two-Way Shut-Off, and Straight-Through Couplings.

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BARR Marine Products Co., Phila. 34, Penna.
Burmeister & Wain American Corp., Mystic, Conn.
B & W LATHROP, see Burmeister & Wain American Corp.
CATERPILLAR Tractor Co., Peoria, Ill.
CERLIST Diesel, Inc., Burlington, N. C.
CONTINENTAL Motors Corp., Muskegon 82, Mich.
CUMMINS Engine Co., Inc., Columbus, Ind.
Detroit Diesel Engine Div., General Motors Corp., Detroit 28, Mich.
DEUTZ, see Diesel Energy Corp.
Diesel Energy Corp., New York 5, N. Y.
FAIRBANKS, MORSE & Co., Beloit, Wis.
FORD Motor Co., Dearborn, Mich.
GENERAL MOTORS, see Detroit Diesel Eng. Div.
GRAY MARINE Motor Co., Detroit 7, Mich.
Harnischfeger Corp., Diesel Div., Crystal Lake, Ill.
HERCULES Motors Corp., Canton 2, Ohio.
INTERNATIONAL Harvester Co., Chicago 1, Ill.
LEHMAN Mfg. Co., Linden, N. J.
MACK Trucks, Inc., Plainfield, N. J.
MINNEAPOLIS-MOLINE Co., Minneapolis 1, Minn.
MURPHY Diesel Co., Milwaukee 19, Wis.
OLIVER Corp., Charles City, Iowa.
D. W. ONAN and Sons, Inc., Minneapolis 14, Minn.
PALMER Engine Co., Cos Cob, Conn.
P&H, see Harnischfeger Corp., Diesel Div.
RED WING Marine Corp., Red Wing, Minn.
R. H. SHEPPARD Co., Inc., Hanover, Pa.
STERLING Engine Co., Inc., Menominee, Mich.
WAUKESHA Motor Co., Waukesha, Wis.
WITTE Engine Works, Oil Well Supply Div., United States Steel Corp., Kansas City 26, Mo.

SMALL GASOLINE ENGINES

For details of their products see pages 180-181.

BRIGGS & STRATTON Corp., Milwaukee 1, Wis.
CLINTON Engines Corp., Maquoketa, Iowa.
CONTINENTAL Motors Corp., Detroit 14, Mich.
CUSHMAN Motors, Lincoln 1, Neb.
GLADDEN Products Corp., Glendale 3, Calif.
GRAVELY Tractors, Inc., Dunbar, W. Va.
HOMELITE Div., Textron, Inc., Port Chester, N. Y.
JACOBSEN Mfg. Co., Racine, Wis.
KOHLER Co., Kohler, Wis.
LAWN BOY Div., Outboard Marine Corp., Lamar, Mo.
McCULLOCH Corp., Los Angeles 45, Calif.
MUSTANG Motor Products Corp., Glendale 3, Calif.
D. W. ONAN & Sons, Inc., Minneapolis 14, Minn.
POWER PRODUCTS Div., Tecumseh Products Co., Grafton, Wis.
WEST BEND Aluminum Co., Hartford Div., Hartford, Wis.
WISCONSIN Motor Corp., Milwaukee 46, Wis.

OUTBOARD MOTORS

For details of their products see page 182.

AMERICAN MARC, Inc., Inglewood, Calif.
BUNDY Marine Div., Bundy Tubing Co., Mountainside, N. J.
EVINRUDE Motors Div., Outboard Marine Corp., Milwaukee 16, Wis.
GALE Products Div., Outboard Marine Corp., Galesburg, Ill.
JOHNSON Motors Div., Outboard Marine Corp., Waukegan, Ill.
Kiekhaefer Corp., Fond du Lac, Wis.

(*Turn to page 352, please*)

THIS AUTOMATIC FINISHING OPERATION handles precision edge blending on aircraft engine cylinder barrels. Setup consists of an Osborn 6-station index table and three finishing heads equipped with Osborn Fascut® Brushes with deburring compound. Heads No. 1 and 3 each brush one minute clockwise and ccw to put .020" blend on edges of mounting holes. Head No. 2 brushes 1½ minutes cw and ccw to put .010" blend on top edge and O.D. thread ends.

EDGE BLENDING cylinders

done 566% faster with OSBORN power brushing

Here's an aircraft manufacturer with a problem: specifications for these reciprocating engine cylinder barrels called for precision tolerances. Hand finishing rate: 3 parts an hour . . . too slow . . . too costly.

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It's another case-in-point of today's Osborn power brushes and brushing methods at work throughout industry solving tough metal finishing problems. An **O**sborn **B**rushing **A**nalysis—made in your plant now at no obligation—can cut costs on *your* deburring, cleaning, polishing and precision blending operations. Write or call *The Osborn Manufacturing Company, Dept. E-95, Cleveland 14, Ohio. Phone ENdicott 1-1900.*

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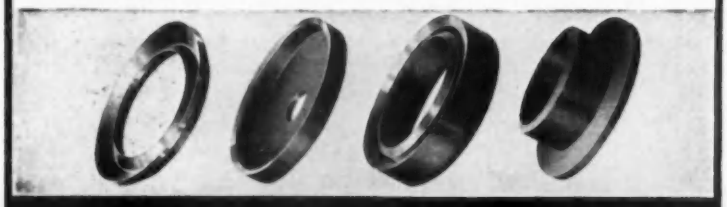

Detailed engineering data and specification sheets furnished on request

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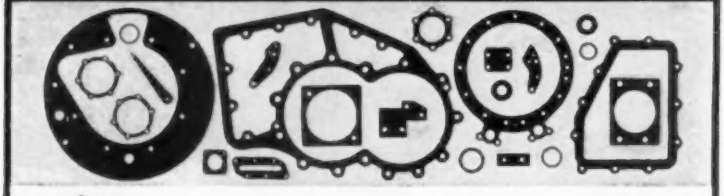

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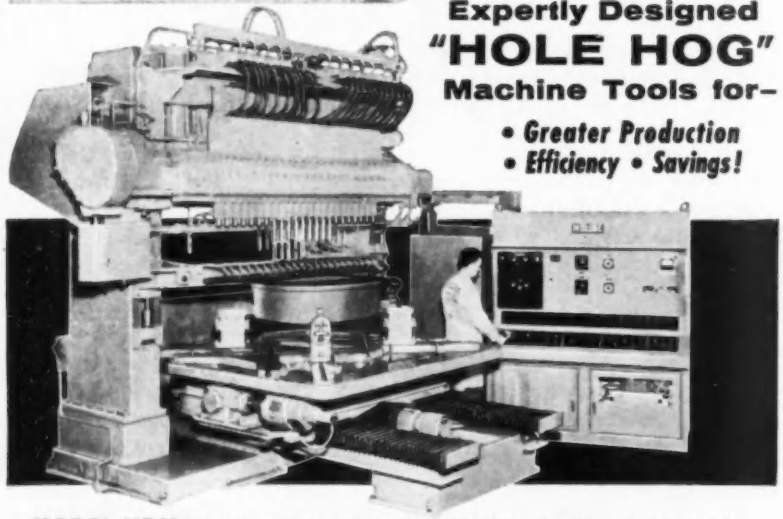
. . . cut from all types of non-metallic materials, such as:
Leather • Accopac • Asbestos • Rubber • Silicone
Nylon • Fibreglass • Felt • Fibre • Cork • Vinylite
Teflon • Viton "A" • Mylar, etc.

Circle 269 on Inquiry Card for more data

MOLINE
MULTI-NUMETRIC
NUMERICAL CONTROL
(AS APPLIED TO MULTIPLE SPINDLE DRILLING)

Expertly Designed
"HOLE HOG"
Machine Tools for—
• *Greater Production*
• *Efficiency* • *Savings!*



MODEL HD68 Tube Sheet Drilling Machine with Multi-Numetric Numerical Control for positioning of machine table in two directions and for selection of spindles. Information on punched tape permits automatic drilling of a complete hole pattern in a tube sheet without interruption.

60 years of Machine Tool Engineering Experience is at your service for—
• Multi-Spindle Boring • Single and Multi-Spindle Honing
• Straight Line Multi-Drilling • Adjustable Spindle Drilling
• Special Multiple Operation Machine Tools

Write for Details

MOLINE TOOL CO.

MOLINE TOOL COMPANY
105 29th STREET • MOLINE, ILLINOIS

REPRESENTATIVES IN PRINCIPAL CITIES

Circle 270 on Inquiry Card for more data

DIRECTORY OF MANUFACTURERS

(Continued from page 351)

Outboard Motors . . . continued

McCulloch Corp., Minneapolis 13, Minn.
MERCURY, see Kiekhaefer Corp.
Muncie Gear Works, Inc., Muncie, Ind.
NEPTUNE, see Muncie Gear Works, Inc.
SCOTT, see McCulloch Corp.
WEST BEND Aluminum Co., Hartford Div., Hartford, Wis.

AUXILIARY GAS TURBINES

For details of their products see page 183.

UNITED STATES

AIRESEARCH Mfg. Co. of Arizona, Phoenix, Ariz.
BOEING Airplane Co., Industrial Products Div., Seattle 24, Wash.
CONTINENTAL Aviation and Engineering Corp., Detroit 15, Mich.
GENERAL ELECTRIC Co., Aircraft Accessory Turbine Dept., West Lynn 3, Mass.
PRATT & WHITNEY Aircraft Div., United Aircraft Corp., East Hartford, Conn.
SOLAR Aircraft, San Diego, Calif.
STEWART & STEVENSON Services, Inc., Houston, Tex.

GREAT BRITAIN

BLACKBURN Engines, Ltd., Brough, Yorkshire, England.

PROPULSION GAS TURBINES

For details of their products see pages 184-189.

UNITED STATES

ALLISON Div., General Motors Corp., Indianapolis 6, Ind.
BOEING Airplane Co., Seattle 24, Wash.
CONTINENTAL Aviation & Engineering Corp., Detroit 15, Mich.
GENERAL ELECTRIC Co., Schenectady 5, N. Y.
LYCOMING Div., Avco Corp., Stratford, Conn.
PRATT & WHITNEY Aircraft Div. of United Aircraft Corp., East Hartford 8, Conn.
SOLAR Aircraft Co., San Diego 12, Calif.
WILLIAMS Research Corp., Walled Lake, Mich.
WRIGHT Aeronautical Div., Curtiss-Wright Corp., Wood-Ridge, N. J.

FRANCE

Societe d'Exploitation des Materials HISPANO-SUIZA, Bois-Colombes, Seine, France.
Societe Nationale d'Etude et de Construction de Moteurs d'Aviation (S.N.E.C.-M.A.), Paris 13, France.
Societe Anonyme TURBOMECA, Bordes, France.

GREAT BRITAIN

BLACKBURN Engines Ltd., Brough, Yorkshire, England.
BRISTOL SIDDELEY Engines Ltd., Bristol, England.
DE HAVILLAND Eng. Co., Ltd., Leavesden, Hertfordshire, England.
D. NAPIER & Son, Ltd., Acton, London W. 3, England.
ROLLS-ROYCE, Ltd., Aero Engine Div., Derby, England.

ITALY

FIAT, Div. Aviazione, Turin, Italy.

U. S. AIRCRAFT ENGINES RECIPROCATING TYPE

For details of their products see pages 190-191.

Aircooled Motors, Inc., Syracuse 8, N. Y.

CONTINENTAL Motors Corp., Aircraft Engine Div., Muskegon, Mich.
FRANKLIN, see Aircooled Motors, Inc.
HERRMANN Engineering Co., Glendale 1, Calif.
LYCOMING Div., Avco Corp., Stratford, Conn.
NELSON Specialty Corp., San Leandro, Calif.
PRATT & WHITNEY Aircraft, Div. United Aircraft Corp., East Hartford 8, Conn.
WRIGHT Aeronautical Div., Curtiss-Wright Corp., Wood-Ridge, N. J.

HEAVY-DUTY AND OFF-HIGHWAY TRUCKS

For details of their products see pages 214-216.

CHAMPION Carriers Inc., Tulsa, Okla.
CHEVROLET Motor Div., General Motors Corp., Detroit 2, Mich.
EUCLID Div., General Motors Corp., Cleveland 17, Ohio.
FORD Div., Ford Motor Co., Dearborn, Mich.
FWD Corp., Clintonville, Wis.
KENWORTH Motor Truck Corp., Seattle 14, Wash.
KW-DART Truck Co., Kansas City 41, Mo.
MARMON-HERRINGTON Co., Inc., Indianapolis 7, Ind.
OSHKOSH Motor Truck, Inc., Oshkosh, Wis.
REO Div., White Motor Co., Lansing 20, Mich.
WALTER Motor Truck Co., Voorheesville, N. Y.
WILLYS Motors Inc., Toledo 1, Ohio.

CRAWLER TRACTORS

For details of their products see page 217.

ALLIS-CHALMERS Mfg. Co., Milwaukee 1, Wis.
J. I. CASE Co., Racine, Wis.
CATERPILLAR Tractor Co., Peoria 8, Ill.
Cletrac Corp., Cleveland 17, Ohio.
JOHN DEERE, see Deere & Co.
Deere & Co., Moline, Ill.
EIMCO Corp., Salt Lake City 10, Utah.
EUCLID Div., General Motors Corp., Cleveland 17, Ohio.
INTERNATIONAL Harvester Co., Chicago 1, Ill.
OLIVER, see Cletrac Corp.

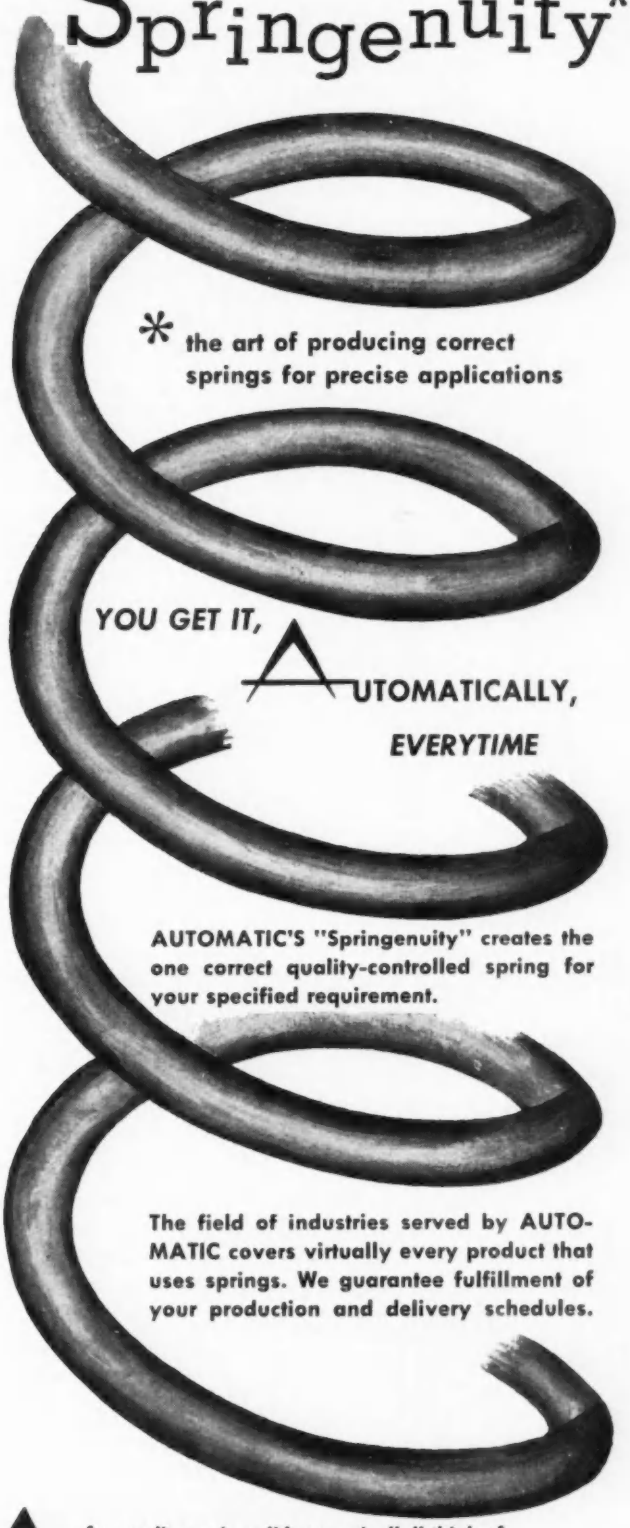
WHEEL TRACTORS

For details of their products see pages 218-222.

ALLIS-CHALMERS Mfg. Co., Milwaukee 1, Wis.
BROCKWAY Tractor Co., Chagrin Falls, Ohio.
J. I. CASE Co., Racine, Wis.
CATERPILLAR Tractor Co., Peoria 8, Ill.
Clark Equipment Co., Construction Machinery Div., Benton Harbor, Mich.
COCKSHUT Farm Equipment Ltd., Brantford, Canada.
JOHN DEERE Waterloo Tractors Works, Deere Mfg. Co., Waterloo, Iowa.
DEXTA, see Ford Motor Co.
FORD Motor Co., Tractor & Implement Div., Birmingham, Mich.
FORDSON, see Ford Motor Co.
INTERNATIONAL Harvester Co., Chicago 1, Ill.
MASSEY-FERGUSON, Ltd., Toronto 3, Canada.
MICHIGAN, see Clark Equipment Co.
MINNEAPOLIS-MOLINE Co., Hopkins, Minn.
OLIVER Corp., Charles City, Iowa.
R. H. SHEPPARD CO., Inc., Hanover, Pa.
TIGER Tractor Corp., Keyser, W. Va.

(*Turn to page 354, please*)

Springenuity*



* the art of producing correct springs for precise applications

YOU GET IT, AUTOMATICALLY, EVERYTIME

AUTOMATIC'S "Springenuity" creates the one correct quality-controlled spring for your specified requirement.

The field of industries served by AUTOMATIC covers virtually every product that uses springs. We guarantee fulfillment of your production and delivery schedules.

for quality springs "Automatically" think of

AUTOMATIC SPRING COILING CO.

4045 West Thorndale Avenue • Chicago 46, Illinois

Circle 271 on Inquiry Card for more data

DIRECTORY OF MANUFACTURERS

(*Continued from page 353*)

SCRAPERS

For details of their products see page 223.

ALLIS-CHALMERS Mfg. Co., Construction Machinery Div., Milwaukee 1, Wis.
CATERPILLAR Tractor Co., Peoria 8, Ill.
Clark Equipment Co., Construction Machinery Div., Chicago 1, Ill.
CURTISS-WRIGHT Corp., South Bend Div., South Bend 23, Ind.
EUCLID Div., General Motors Corp., Cleveland 17, Ohio.
INTERNATIONAL Harvester Co., Construction Equipment Div., Chicago, Ill.
R. G. LE TOURNEAU, Inc., Longview, Texas.
LE TOURNEAU-WESTINGHOUSE Co., Peoria, Ill.
MICHIGAN, see Clark Equipment Co.
SEAMAN Corp., Milwaukee 15, Wis.

GRADERS

For details of their products see pages 224-225.

ALLIS-CHALMERS Mfg. Co., Milwaukee 1, Wis.
AUSTIN-WESTERN Construction Equipment Div., Baldwin - Lima - Hamilton Corp., Aurora, Ill.
CATERPILLAR Tractor Co., Peoria 8, Ill.
GALION Iron Works & Mfg. Co., Galion, Ohio.
HUBER-WARCO Co., Marion, Ohio.
LE TOURNEAU-WESTINGHOUSE Co., Peoria, Ill.
PETTIBONE-Mulliken Corp., Rome, N.Y.

DUMPERS—REAR, BOTTOM, FRONT

For details of their products see page 225.

ALLIS-CHALMERS Mfg. Co., Milwaukee 1, Wis.
Clark Equipment Co., Construction Machinery Div., Chicago 1, Ill.
CURTISS-WRIGHT Corp., South Bend Div., South Bend 23, Ind.
EUCLID Div., General Motors Corp., Cleveland 17, Ohio.
KOEHRING Co., Milwaukee 16, Wis.
LE TOURNEAU-WESTINGHOUSE Co., Peoria, Ill.
MICHIGAN, see Clark Equipment Co.

POWERED ROLLERS

For details of their products see pages 226-227.

Acme Iron Works, San Antonio 6, Texas.
AUSTIN - WESTERN, Construction Equipment Div., Baldwin-Lima-Hamilton Corp., Aurora, Ill.
BROWNING Mfg. Co., San Antonio 6, Texas.
C. H. & E. Mfg. Co., Milwaukee 12, Wis.
FERGUSON-GEBHARD, see Shovel Supply Co., Inc.
GALION Iron Works & Mfg. Co., Galion, Ohio.
HUBER-WARCO Co., Marion, Ohio.
INGRAM, see Acme Iron Works.
R. G. LE TOURNEAU, Longview, Tex.
SEAMAN-GUNNISON Div. of Seaman Corp., Milwaukee 18, Wis.
Shovel Supply Co., Inc., Dallas, Texas.
TAMPO Mfg. Co., San Antonio 7, Texas.

INTEGRAL FRONT-END LOADERS (SHOVEL)

For details of their products see pages 228-229.

ALLIS-CHALMERS Mfg. Co., Milwaukee 1, Wis.
J. I. CASE Co., Racine, Wis.
CATERPILLAR Tractor Co., Peoria 8, Ill.
Clark Equipment Co., Construction Machinery Div., Benton Harbor, Mich.
Cletrac Corp., Cleveland 17, Ohio.
EIMCO Corp., Salt Lake City, Utah.
EUCLID Div., General Motors Corp., Cleveland 17, Ohio.
FORD Motor Co., Tractor and Implement Div., Birmingham, Mich.
Frank G. Hough Co., Libertyville, Ill.
INTERNATIONAL-DROTT, see International Harvester Co.
International Harvester Co., Melrose Park, Ill.
MICHIGAN, see Clark Equipment Co.
Mixermobile Manufacturers, Inc., Portland 20, Ore.
OLIVER, see Cletrac Corp.
PAYLOADER, see Frank G. Hough Co.
Pettibone-Mulliken Corp., Chicago 51, Ill.
PETTIBONE-SPEEDALL, see Pettibone-Mulliken Corp.
SCOOPMOBILE, see Mixermobile Manufacturers, Inc.
TROJAN, see Yale & Towne Mfg. Co.
Yale & Towne Mfg. Co., Trojan Div., Batavia, N. Y.

for all engine applications

JOHNSON *tappets*

Keeping ahead with the latest tappet developments is a full-time job at JOHNSON PRODUCTS. All of our design engineering and manufacturing improvements go toward giving your engine the right kind of *tappet performance*.

We think the results speak for themselves: Johnson Tappets are *high in quality, competitive in price*. As tappet specialists, we welcome the opportunity to show you how well the job can be done.

Johnson TAPPETS

"tappets are our business"

JOHNSON JP PRODUCTS

MUSKEGON, inc. MICHIGAN

Hiller Heads Council

Stanley Hiller, Jr., president of Hiller Aircraft Corp., has been elected chairman of the Helicopter Council of the Aerospace Industries Association.

Circle 272 on Inquiry Card for more data

WHATEVER THE STEERING PROBLEM

BLOOD BROTHERS U-JOINTS

assure maximum safety, precision steering control

Nearly all major truck manufacturers rely on the ingenuity, ability and established leadership of Rockwell-Standard engineers to provide Blood Brothers universal joints for today's increasingly complex steering assemblies. With each new steering advancement Rockwell-Standard engineers have demonstrated their resourcefulness and skill by supplying dependable, trouble-free universal joints.

For example, the development of power steering and tilt cab trucks introduced the need for more intricate steering shaft assemblies. Rockwell-Standard engineers met the challenge with universal joints capable of transmitting power around corners without any sacrifice in operating performance or steering safety.

PARTICULARLY IMPORTANT IS THE ROCKWELL-STANDARD DEVELOPMENT OF:

- **An anti-backlash universal joint for steering columns that provides greater precision in steering control.**
- **A specially designed machine that tests every Blood Brothers steering joint at 4000-inch pounds of torque. This pre-shipment precaution insures dependable steering that cannot fail even under extreme torque pressure.**

Whatever the steering assembly, whatever problems it presents, Rockwell-Standard engineers can design and develop universal joints that are reliable, efficient and economical.

Another Product of...

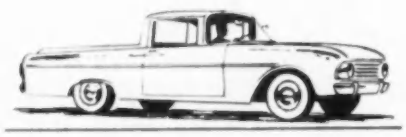
ROCKWELL-STANDARD CORPORATION

ROCKWELL R STANDARD

Universal Joint Division, Allegan, Michigan

Circle 273 on Inquiry Card for more data

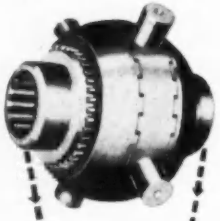
in a compact pick-up



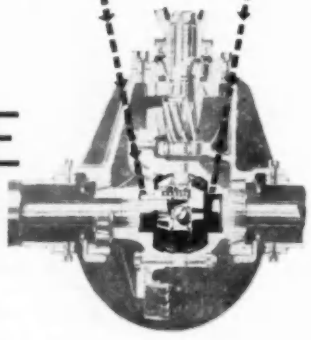
or an earthmover

in any size vehicle

PUT THIS [NoSPIN] DIFFERENTIAL



IN HERE [LIVE AXLE]



and BOTH wheels drive ALL the time

NoSPIN *Stops Wheel Spin*

Available for most axles

WRITE TODAY FOR COMPLETE DESCRIPTIVE LITERATURE

DETROIT AUTOMOTIVE PRODUCTS CORPORATION

Manufacturers of **THORNTON** *Four-Rear-Wheel* **DRIVES**, NoSPIN *Differentials and Super* **LOAD-BOOSTER** *third axles*

8705 GRINNELL AVENUE DETROIT, 13, MICHIGAN, U. S. A.

Chrysler Quality Cost System

(*Continued from page* 330)

Let's leave the Cost Master Deck for just a moment to discuss the other end of the program, which is, the initiation of the scrap ticket in the shop.

Every part or group of parts with the same defect scrapped at Mound Road has a Defective Material Ticket, a scrap ticket, written for it. This ticket is routed to a key punch operator who makes up an I.B.M. card with the following information.

1. The Defective Material Tag Number—the preprinted number appearing on every ticket.
2. The date the scrap ticket was written.
3. The spoilage quantity—the number of parts scrapped out on the ticket.
4. The department found—the department in which it was discovered that the part was scrap.
5. The number of the last operation completed—the point at which it was discovered that the part was defective and should not be processed any further.
6. The part number—for obvious reasons.
7. The department charged—the department which performed the operation which made the part no longer usable.
8. The defective operation number which ties in with the previously mentioned operation which made the part scrap.
9. The shift which was responsible for the scrap.
10. The cause code which ties in with a Corporate Procedure which breaks out scrap into the following major categories:
    - A. Defective Workmanship
    - B. Defective Tools
    - C. Assembly
    - D. Handling
    - E. Vendor
    - F. Miscellaneous
11. The cause detail which is a Quality Control coding system spelling out in detail why the part was scrapped, such as "undersize pin diameter on a crankshaft."

With this basic information key punched on a card, the card is then matched against the Master Card Deck through a machine manipulation, matching department found, last operation number and part number to produce the following information on the same card:

1. The Material Dollars which have been lost on that particular scrap ticket.
2. The Current Labor Dollars on the scrap ticket.
3. The Variable Burden Dollars.
4. The Total Current Dollars which will then indicate the total amount of money lost on the scrap ticket being processed.

(*Turn to page* 362, *please*)

Why Die Stamped Circuits by Dytronics?

ELECTRICAL PROPERTIES UNIMPAIRED

Die stamped circuits are produced by a dry technique which employs a heated metal-cutting die to delineate the conductor pattern and bond it to the base material by activating the adhesive between the metal foil and the insulating material.

The electrical properties of the base material are unimpaired, because no chemicals are used, and there is no adhesive residue or residual metal on the insulating surfaces. This gives the designer the advantage of selecting base materials for physical and electrical properties without considering chemical resistance.

A new booklet, "Designing with Dytronics Die Stamped Circuits," will help you evaluate and design with die stamped circuits. Write for your free copy today.

Dytronics
INCORPORATED
ROCHESTER 49, MICH.
A subsidiary of Taylor Fibre Co.
Norristown, Pa.

Circle 275 on Inquiry Card for more data

Manufacturers' News

Midland-Ross Merger

Directors of the Midland-Ross Corp. and Industrial Rayon Corp. have approved merger of the concerns through an exchange of stock. Stockholders of each company will vote on the plan late in April. Industrial Rayon would operate as a division of Midland-Ross. Industrial Rayon produces rayon cord for tires and other industrial uses and makes textile rayon yarn for the home furnishings and apparel industries.

Ryan's Record Sales

Ryan Aeronautical Co. sales in fiscal 1960 rose to an all-time high. Sales of $122 million were a 45 per cent increase over the prior year. Most of the increase was accounted for by delivery of electronic navigation sets and other radar equipment. Net income last year was $2,894,055, compared with $2,312,656 in 1959. Net income last year was equal to $1.76 a share. In 1959, the per share figure was $1.72.

A-C Profits Decline

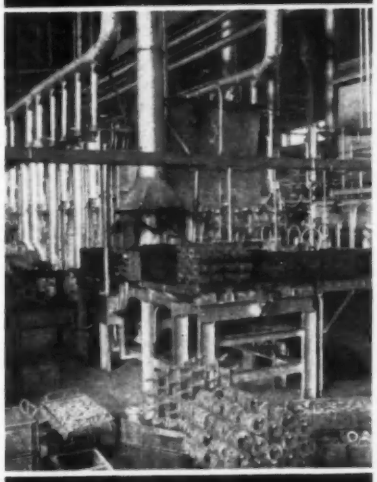
Earnings in 1960 were less than half those in 1959 Allis-Chalmers Mfg. Co. has disclosed. R. S. Stevenson, president, said 1960 sales dropped to $530 million from $539.6 million in 1959. Profits after taxes in 1960 were $10.6 million, equal to $1.12 a share. In 1959, earnings were $22.8 million, or $2.47 a share. Mr. Stevenson said the 1961 earnings outlook is better, with farmers buying more machine and the public highway construction pace increasing.

Outboard Motor Gifts

Hundreds of outboard motors will be given the Food and Agriculture Organization by the Outboard Marine Corp. The agency said the contribution was the first "substantial support by a business organization for the freedom-from-hunger campaign," which seeks to increase food production. The outboard motors are expected to go to several hundred fishermen a year for the next five years.

(*Turn to page* 359, *please*)

HOLCROFT



Production Heat Treating Equipment

Working with these materials:

- ALUMINUM
- BRASS
- COPPER
- STEEL
- MALLEABLE
- STAINLESS
- CAST IRON

HOLCROFT & COMPANY
6545 Epworth Blvd., Detroit 10, Mich.
Phone TY 4-5700
44 YEARS OF ENGINEERING LEADERSHIP

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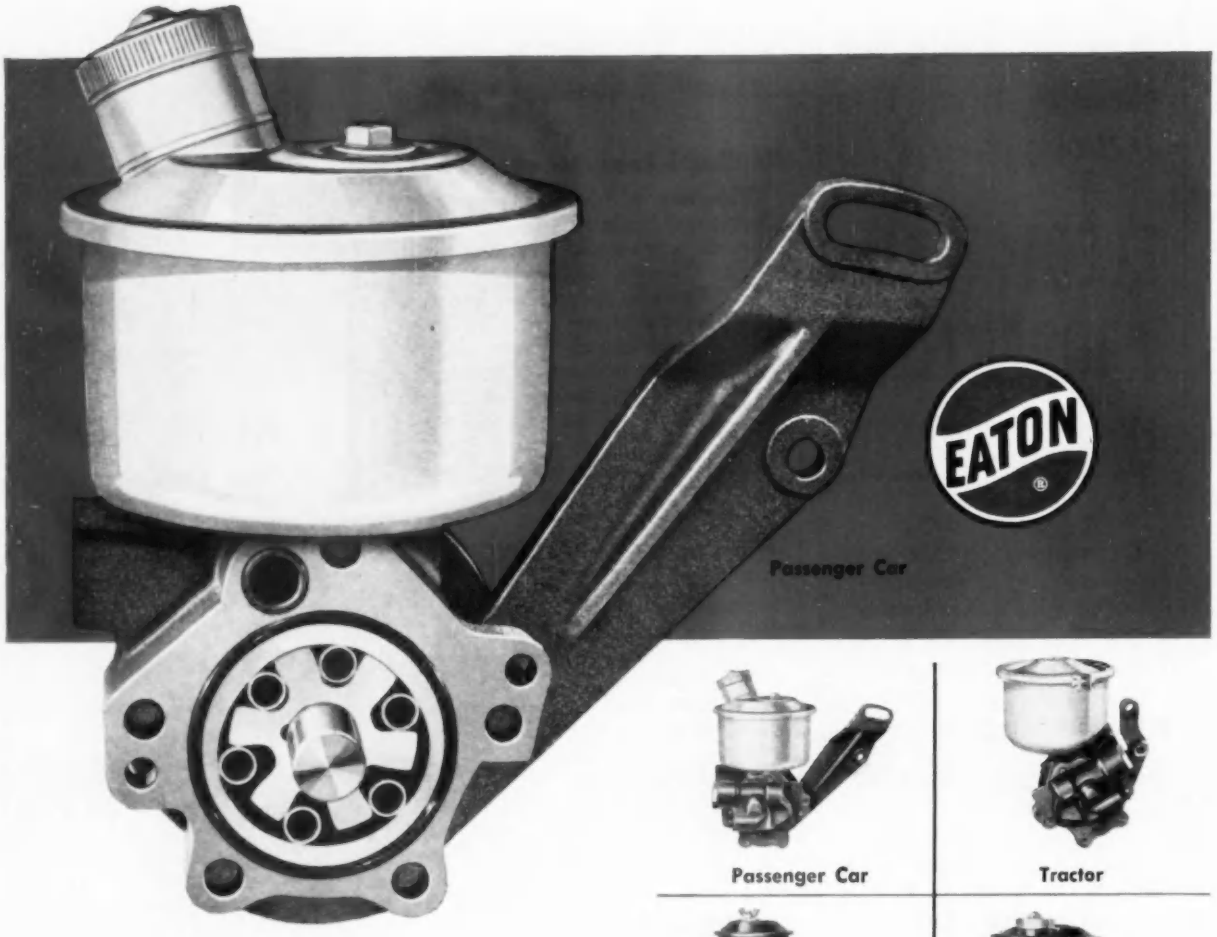


There's an EATON ROLL PUMP for every Power Steering Requirement

Eaton Roll Pumps, performing reliably on leading motor cars, trucks, and tractors, have a number of proven advantages including compact, space-saving design, high efficiency, quiet operation, and simple construction.

Eaton Pump Division sales engineers will be glad to work with you in selecting or developing better pumps to meet your specific requirements. Call on us.

Passenger Car

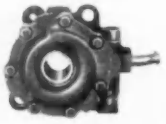
Tractor

Passenger Car

Truck

Truck or Tractor

Truck


Passenger Car or Truck (Crankshaft Mounted)

Passenger Car

EATON PUMP DIVISION
MANUFACTURING COMPANY
9771 FRENCH ROAD • DETROIT 13, MICHIGAN

Circle 277 on Inquiry Card for more data

Manufacturers' News

(*Continued from page* 357)

Second Best Year

White Motor Co. reported sales and earnings in 1960 were the second best in the company's 60 years. Sales totaled $282.6 million and net income was $8,875,813 compared with record sales of $333.1 million and net income of $14,209,244 in 1959. Net income for 1960 was equal to $3.87 a share. This compares with $6.62 per share for 1959.

Goodrich Profits Dip

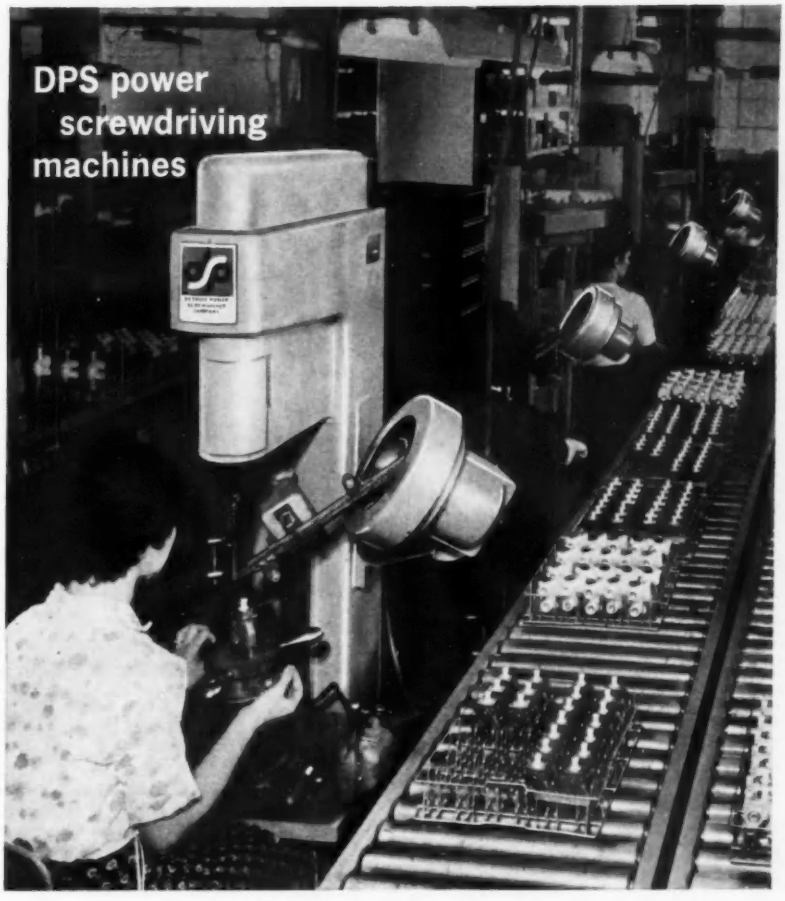
Earnings in 1960 were down sharply despite second best annual sales, B. F. Goodrich Co. has reported. Last year, earnings were $30 million, equal to $3.33 a share, compared with $37.5 million, or $4.18 a share, in 1959. Sales in 1960 were $764.7 million against $771.5 million in 1959. Capital expenditures, last year, were $41.3 million, compared with $34.2 million in 1959.

Larger Ford Plant

A 12,000 sq ft addition to the Ford Motor Co.'s Buffalo, N. Y. stamping plant is expected to be completed by May 1. The one-story addition will be used to store materials and will make available more production space in the stamping plant.

Aluminum Anniversary

Aluminum, now in its 75th year, was used for automobile bodies as early as 1903, the Aluminum Association reports. In 1926, a fleet of experimental cars that were about 85 per cent aluminum was made by the Pierce Arrow Co. They weighed 3045 lb—of which 2580 lb was aluminum. This contrasts with the 3730 lb weight of the comparable model in conventional materials. The next major development in highway travel also may involve aluminum. Tests are being performed with automatically-controlled cars, operated by radio signals broadcast through aluminum foil buried in the pavement beneath them.



drive screws and nuts fast . . .
mar-free and accurately

Something as small as an inaccurately driven screw or nut can cause parts to be rejected. And that costs you money both in parts waste and time lost.

DPS Model U power screwdriving machines drive screws and nuts with the accuracy that improves assembly quality, reduces rejects. They give you speed, too. Drive up to 40 screws or nuts per minute.

The Model U is available in two types . . . pedestal and self-contained driving head. Both require only a minimum of space and are easily adaptable to your work flow. Feeder mounts on either side of machine column for right- or left-hand assembly. Other features include a positive control clutch which maintains constant driving torque, motorized hopper drive with safety clutch, and fully adjustable feed track and escapement mechanism.

DPS Model U drives screws from #6 x 3/16" long to 1/4" x 1 1/2" long and can be equipped with 12" or 16" rotary feeders. Write for Model U bulletin.

15,603

DETROIT POWER SCREWDRIVER CO.
A Subsidiary of Link-Belt Company

Selective Parts Feeders; Screw, Nut and Stud Driving Machines; Special Purpose Assembly Machines

2825 W. Fort Street
Detroit 16, Michigan
TAshmoo 5-3070

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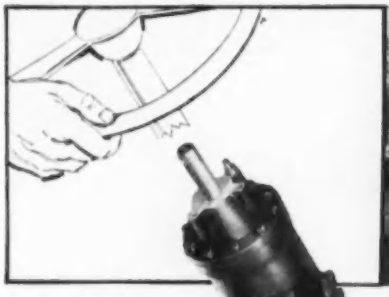
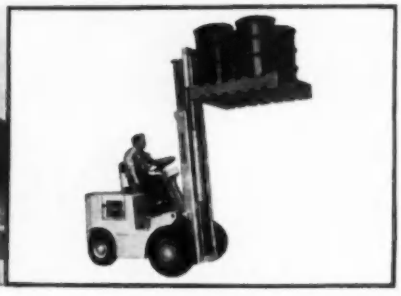
Leading manufacturers *



are turning to...



SHEPPARD POWER STEERING

* Some of the equipment now being steered by Sheppard Power Steering

Allis Chalmers 145 Motor Graders
American LaFrance
Baker Industrial Trucks
Brockway Trucks
Dominion Road Graders
Gatman Brothers Ore Carriers
Grove Mobile Cranes
Huber Warco Maintainers
Koehring Dumpsters
Le Roi Self Propelled Compressors
Mack Trucks
Pettibone Mu'liken Graders & Skidders
Piper and Paine Pavers

Compact, simplified design means easy, no-problem installation and dependable, trouble-free operation. Adjustable stops adapt the Sheppard gear to make full use of existing steering geometry. If it's on wheels, it will take a turn for the better with Sheppard Power Steering.

write for information today.

R. H. Sheppard Company, Inc. • Hanover, Pa.

Sheppard

"A POWER IN INDUSTRY"

ON OUR WASHINGTON WIRE

Demands are erupting in Congress for harsher penalties for antitrust violations by corporations and their executives. Legislation has been introduced to bar any person convicted of antitrust violations from holding office in any corporation. Another bill would force public disclosure when companies submit identical bids for government contracts.

The Pentagon plans to give small businesses a larger share of defense contracts. Defense Secretary Robert S. McNamara promises steps will be taken to find greater opportunities for procurement set-asides for small business. He also said he would encourage prime contractors to make greater efforts to increase the competitive opportunities for small businesses.

Congressional plans are under way to "strengthen the reporting practices covering the scrap steel industry." The new statistics will be used in government antitrust procedures. Sen. John J. Sparkman (D., Ala.) says the Senate Small Business Committee discovered serious deficiencies in statistics of the scrap industry.

Army men are predicting the Nike Zeus missile killer will take a bigger part in short and long range defense plans. The anti-missile missile looks as if it will get the go ahead sign for more budget money shortly. Long range plans, say Army sources, are to protect every major U. S. city with the Nike Zeus.

The Kennedy Administration's defense speedup plans will add more than $2 billion to the $41.8 billion military budget now slated for 1962. The plan, based on reports from a number of Pentagon task forces, calls for speeding missile production, increasing the number of jet bombers kept on alert and expanding conventional armed forces for limited and global war.

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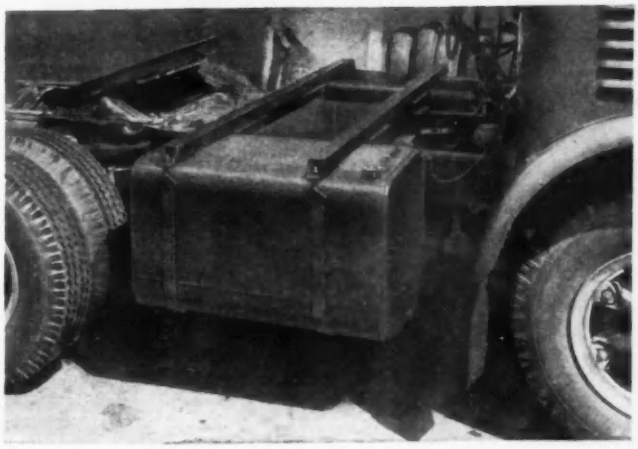

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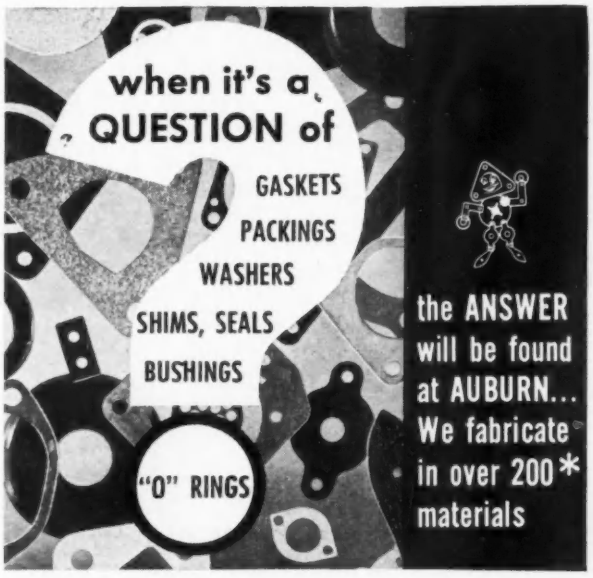

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Chrysler Quality Cost System

(*Continued from page* 356)

From the same basic Defective Material Ticket a Key Punch Card is made up for the Accounting information which is matched against the Accounting Cost Master Deck to produce the dollars lost in Accounting terms — Permanent Labor Rates and no Variable Burden.

At the outset it was determined to produce a substantial amount of reports but to eliminate them as the needs were eliminated. The lists of reports are as follows:

Each week, a listing of the plant fault scrap and vendor fault scrap is produced. The plant fault report has sub-breakdowns by department responsible, part number and defective operation. The breakdowns in the vendor report are part number, vendor name, and cause detail.

At the end of the month, the same report of plant and vendor fault is run. The only difference is the time period—monthly instead of weekly.

The first monthly list which is run by Data Processing is a Ticket Control list. It is run to be certain all scrap tickets have been accounted for. A Cost Analyst checks out this report for completeness and the rest of the reports can then be processed.

A Cause Code Summary list is run to classify the responsibility for scrap. These were mentioned earlier: A. Defective Workmanship, B. Defective Tools, C. Assembly, D. Handling, E. Vendor, F. Miscellaneous.

A Cause Detail list is run to show the major reasons certain parts are scrapped, for instance, costs of crankshaft scrapped because of undersized journals.

A list of the Highest Twenty Costs Parts is also run monthly to provide the Corporate Quality Analysis Department with this required information.

The final listing, each month, is the Per Cent Defective list which shows the per cent scrap by part number. The per cent scrap is based on the total production for the month. You can imagine the time saved in manual desk calculation by obtaining this information from this system.

In summary, quality costs must be faced sooner or later by every Quality Control Group. It is better to prepare for them intelligently, carefully, and completely. You will find, as we did, that the dollar sign is the most easily understood statistical symbol; it stimulates interests in the face of growing apathy; it supports quality demands; it justifies corrective action; and last, but not least, it looks beautiful when it's moving in the right direction of cost savings. ■

The foregoing is an abstract of a paper presented at the 15th Annual Forum of the American Society for Quality Control, Greater Detroit Section, on September 10, 1960

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The thicker the M&T chromium plate the longer it lasts in service

How much thicker you want to plate chromium depends on the part, the type of deposit, and its end use. But thicker it should be. You definitely improve corrosion resistance of steel parts and zinc die castings as you increase chromium thickness.

By plating with M&T's MICRO-CRACK CHROMIUM, either in a single or duplex deposit, you outperform ordinary chromium plate not only on speed of deposition, but also on quality. A thickness of about 50 millionths of an inch over nickel gives much better protection. The finish resists blemishes far longer.

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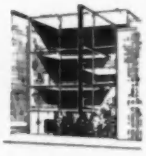
A CHILTON  PUBLICATION

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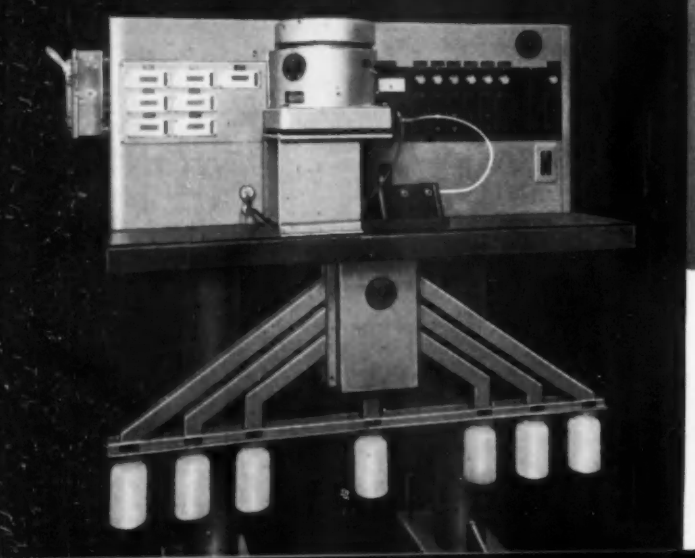

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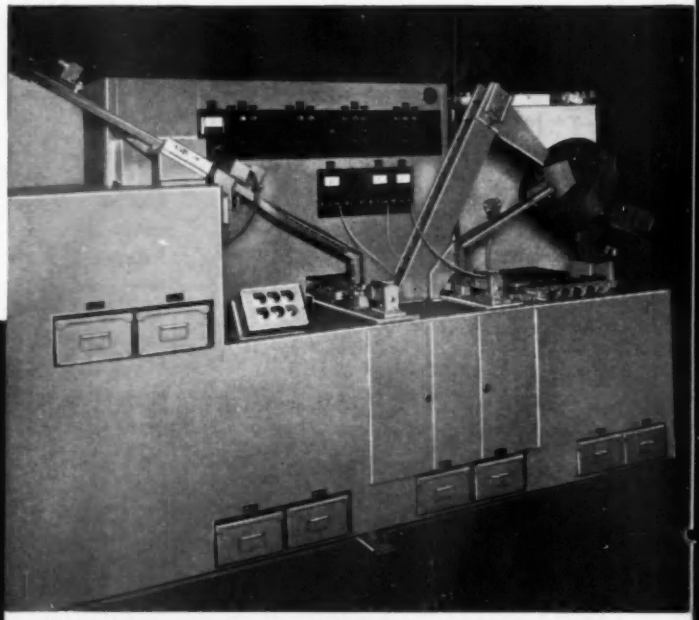

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BELOW LIST PARTS OR COMPONENTS	DESIGN PROBLEM REPORTED AND ASSIGNED FOR STUDY	N SEL RE: (CHECK A.
ENGINES Fuel system, pistons, bearings, valves, timing parts, cooling systems, crankshaft, connecting rods, etc.		
(Fill in specific parts below)		
POWER TRAIN Transmission, clutch, differential, universal, gears, bearings, shafts, etc.		
(Fill in specific parts below)		
CHASSIS Brakes, frames, hydraulic systems, suspension system, wheels, steering, bearings, etc.		
(Fill in specific parts below)		

IGN ENGINEERING IMP

NEW PRODUCTS ELECTED FOR STUDY RE: NEW OBJECTIVES (CK A. I. STATISTICAL ISSUE FOR PRODUCT SOURCES)	REPORT OF APPROVED ITEMS TO ENGINEERING STANDARDS MANUFACTURING AND PURCHASING DEPTS.	BELOW MATER
		METALS Ferrous, all zinc, stainl
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		PLASTICS Molded, re-inforc other
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		RUBBER Sheet, ro synthetic
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RING IMPROVEMENT

OVED ITEMS STANDARDS AND TS.	BELOW LIST MATERIALS	DESIGN PROBLEM REPORTED AND ASSIGNED FOR STUDY
	METALS Ferrous, alloys, aluminum, copper, zinc, stainless, tubing, misc.	
	(Fill in specific materials below)	
	PLASTICS Molded, sheet, rod, tube, foam, re-inforced, laminated, extruded, other	
	(Fill in specific materials below)	
	RUBBER Sheet, rod, tube, molded, sponge, synthetic, silicone, misc.	
	(Fill in specific materials below)	

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CHASSIS Brakes, frames, hydraulic systems, suspension system, wheels, steering, bearings, etc. (Fill in specific parts below)		
BODY Panels, grills, seats, upholstery, trim, sound-proofing, hardware, controls, weldments, etc. (Fill in specific parts below)		
ELECTRICAL SYSTEMS Ignition, lights, instruments, actuators, wiring, terminals, etc. (Fill in specific parts below)		
SEMI-FINISHED PARTS & MISC. Fasteners, castings, stampings, forgings, gaskets, seals, etc. (Fill in specific parts below)		

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A four page, illustrated bulletin describes vapor - spray - vapor degreasers. Principle of operation, solvent cycle and a table of specifications on all vapor-spray-vapor models are discussed with clarity. Heating methods, degreaser features and unit construction are also presented. *Phillips Mfg. Co., Inc.*

Oil Filter Presses 2

Bulletin GEA-7141, 4 pages, discusses the features, operation, application and filtering process of Oil Filter Presses and Pyranol Purifiers for reconditioning insulating liquids in transformers, regulators and circuit breakers. Publication includes available ratings, components, price and data tables. *General Electric Co.*

Ceramic Tools 3

A new catalog on Stupalox ceramic cutting tools, a 28 page, 3 hole punched folder, gives the properties data on Stupalox and specs and prices on throwaway inserts, heavy duty button inserts, solid inserts, unground blanks, single point tools, and tool holders. *The Carborundum Co.*

Friction Materials 4

A new brochure outlines standard friction parts, characteristics and recommendations. Parts and materials listed are suitable for all brakes, clutches, automatic transmissions and vibration dampers regularly installed in automotive, construction and industrial equipment and power tools. Design data included in the brochure covers size limits, tolerances, friction material descriptions and recommended applications. Data also includes tensile strength, coefficient of friction and recommended service (wet, dry or in oil) for each type of material. *World Bestos.*

Data Searching 5

An 8-page brochure describes a new electronic system of searching metallurgical and related literature for specific information on subjects. Discusses the mechanized way to reduce research costs and increase accuracy, speed and effectiveness. Shows how subscribers may receive, every two weeks, information on anything published in the preceding two weeks in their field of interest. *American Society for Metals.*

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Cleaning Barrels 6

Five heavy-duty Rotoblast barrels, with work capacities ranging from 15 to 102 cu. ft, are described in Bulletin 705. The features of the Rotoblast powerful blast cleaning process are illustrated with cut-away drawings, photos and sketches. Specifications and overall dimensions are also outlined. Illustrated case histories show how heavy-duty barrels have reduced costs substantially at many different installations. *Pangborn Corp.*

Controllers 7

A 56 page catalog covers complete line of controllers — pneumatic and electric. This detailed, illustrated catalog covers new modular design features as well as the new proportional plus reset rate control units, partial chart listings, and pneumatic and electric contact control forms. Catalog number is C-15-2a. *Minneapolis - Honeywell Regulator Co., Industrial Div.*

Bibliography 8

A survey of the published literature on lead-lithium alloys summarizes the data obtained in investigations carried out over the past three decades, including physical properties and suggested uses. Much of this information, existing as it does only in periodicals or patents, has not been readily available to metallurgists and engineers. The purpose of this annotated bibliography then, is to present the abstracts of all published data in handy reference form. Part I is an index of the material arranged in a logical outline according to properties, uses, manufacture and analysis. By consulting this index the reader can quickly find the abstracts that interest him and the information he desires. *Foote Mineral Co.*

Clearance Lights 9

A newly developed "Throwaway" clearance light is described and illustrated in a data sheet that covers installation, economy factors and specifications. The light can be used in single or multiple installations and is replaceable in seconds. A main feature of the light is its being completely self contained. *King Bee Mfg. Co.*

Optical Comparators 10

A new 60 page book on optical comparators contains complete catalog information. One section takes the reader through a step by step, illustrated demonstration of how basic measuring is accomplished. Other sections of this completely indexed book provides details on accessories and illustrates over 20 applications, varying from tiny electronic components to large steam turbine blades. *Jones & Lamson Machine Co.*

Blades & Tools 11

A new bulletin for the metalworking industry is a complete, permanent reference source for use in ordering blades and tools for all types of centerless grinders and screw machines. The new 12-page bulletin list complete data on the Rogers Adjustable Hand Reamers and Machine Reamers and Blades. The bulletin also gives in complete easy to read chart form specifications, dimensions, and drawings of the complete line of standard centerless grinder work rest blades, new standards on cut-off blades for all styles and makes of automatic screw machines, and some examples of special carbide tipped tools, knives, and shear blades. *Ohio Knife Co.*

Blind Nut 12

A new solution to the problem of blind fastening is offered in a product bulletin. It covers the SPS Davis press nut. The literature reviews the principle of operation of the one-piece, flush-mounting nut; suggests possible applications, principally in airframe, missile and comparable sheet metal applications; and details general specification data. *Standard Pressed Steel Co.*

Truck Selection 13

A booklet shows how proper truck selection, operation maintenance can produce substantial savings in the face of mounting transportation costs. Entitled "Basic Considerations in the Selection, Operation and Maintenance of Motor Vehicles," the study emphasized the importance of getting the right truck for the job. *GMC Truck & Coach Div., General Motors Corp.*

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Furnaces 14

Bulletin GED-4304, eight pages, describes gas or electric roller hearth furnaces for high production, top quality, economical annealing, hardening, brazing, sintering and general heat treating. Four pages of drawings and copy explain design features of various components of the furnaces. Different types of heating chambers are also discussed. Diagrams show furnaces most suitable for each treating process, and specifications chart gives application data. *General Electric Co.*

Filtration 15

"How to enjoy more miles of effective filtration at less cost" is described in a 4-page bulletin. Comparisons of various filtering media and contaminant removal tests are shown in chart form. Cut-away views illustrate the patented filtering process. Also included is a description of filtering units and replacement packs. *Luber-finer, Inc.*

Product Data 16

A new 20-page 4-color illustrated brochure, B-6429, describing Division facilities, products and markets is now available. Called "Profile", the new brochure is designed to present an insight to the Industrial Division for architects, engineers, contractors, building owners, plant management, public utility personnel, and other users of air conditioning, air handling, heat transfer and fluid drive equipment. *Industrial Div., American Radiator & Standard Sanitary Corp.*

Die Castings 17

A new brochure "Proven Answers to Exacting Production Problems," provides information on the scope of the service to industry Hadlock & Temte offers through this new development in precision miniature die casting. Among the brochure's interesting features are photographs of actual miniature parts produced to military standards. A case history outlines how one of these die cast parts enabled a manufacturer of electrical instruments to save $15,000 per year in parts and assembly cost alone. *Service Div., Hadlock & Temte, Inc.*

Reliability 18

A booklet developed especially for the 1961 Reliability Symposium held in Philadelphia is now available. Called "AGREE Reliability in Action", it covers in three sections: action taken by the Defense Dept. and industry to establish a general program for reliability in military electronics; Portions of a specific contract that applies to the principles of this general program; and one manufacturer's experience in producing according to these procedures. AGREE stands for the Advisory Group on Reliability of Electronic Equipment. Illustrations, graphs and charts are included in the publication. *Hoffman Electronics Corp.*

Bearings 19

Self-aligning bearings and rod end bearings are illustrated and described in detail in the new 56-page, 1961 Catalog 551 which covers the entire "Monoball" line. Included is their new series of "Dyflon" plastic alloy insert, self-lubricated bearings which are available in a variety of plain or rod end types. Both sizes are now offered up to 6.000 in. Ultimate static loads up to 4,500,000 lbs. Materials include stainless steel, plastic alloys and chrome alloy steels. *Southwest Products Co.*

Calibrator 20

A bulletin describing the operation and application of a portable torque wrench calibrator lists complete specifications and dimensional data for six models. Technical information is tabulated for easy-to-read reference. *Skidmore-Wilhelm Mfg. Co.*

Limit Switches 21

Bulletin GEA-7312, 12 pages, describes a line of limit switches for automatic pilot control. Publication includes an application guide, a short section on limit switch terminology, and selection and installation guides. Bulletin discusses typical applications of G-E's lever, leverless and rotating cam and limit switches, as well as tripping forces involved for activation of each switch. Photo of each model is shown along with cutaway photo and callouts. Diagrams give typical dimensions of each model. *General Electric Co.*

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By C. J. Kelly
ASSISTANT EDITOR

Lift Truck 22

Complete engineering specifications and design features of the Clarklift gas powered stand-up, end control fork lift truck are given in six page bulletin SS-2067. The catalog describes the C-20SU, and C-25SU models with rated capacities of 2000, and 2500 lbs at 24 in. load centers. The bulletin describes features never before offered on a gas powered truck of this type, the manufacturer reports. The features include a water cooled engine, a power shift transmission with torque converter, and swing out panels for easy engine accessibility. *Industrial Truck Div., Clark Equipment Co.*

Silicones 23

A new and comprehensive booklet on silicones containing the most recent and advanced information on these important man-made chemicals has just been issued as an aid to engineers and technical personnel. Graphically illustrated with photographs, charts and graphs, the booklet goes into detail about what silicones are, describes their manifold uses for consumer and industrial products, and suggests ways in which they can be adapted to a host of new applications by the design engineer or product development manager. Of special significance is the series of charts covering the properties and features of Silicone fluids, resins, rubber compounds, water repellents, anti-foams and emulsions, and their adaptability for use by the aviation, automotive, chemical, electronic, rubber, paint, metal working and other industries. *Silicones Div., Union Carbide Corp.*

Filtering Media 24

"How to enjoy more miles of effective filtration at less cost" is described in a 4-page bulletin. Comparisons of various filtering media and contaminant removal tests are shown in chart form. Cut away views illustrate the petented filt filtering process. *Luber-Finer, Inc.*

Clamping Cylinders 25

4-page illustrated bulletin 91036, describing clamping cylinders, supplies descriptions, specifications, outstanding features, optional features, ordering data and dimensions. *Airmatic Valve, Inc.*

Electrical Parts 26

A complete new several hundred page catalog lists engineering information dimensions, etc., small electro-mechanical drive systems, timing devices, variable speed controls, speed reducers and electric motors. *Minarik Electric Co.*

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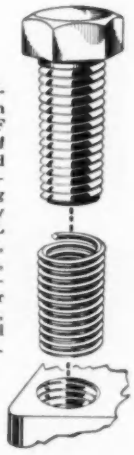

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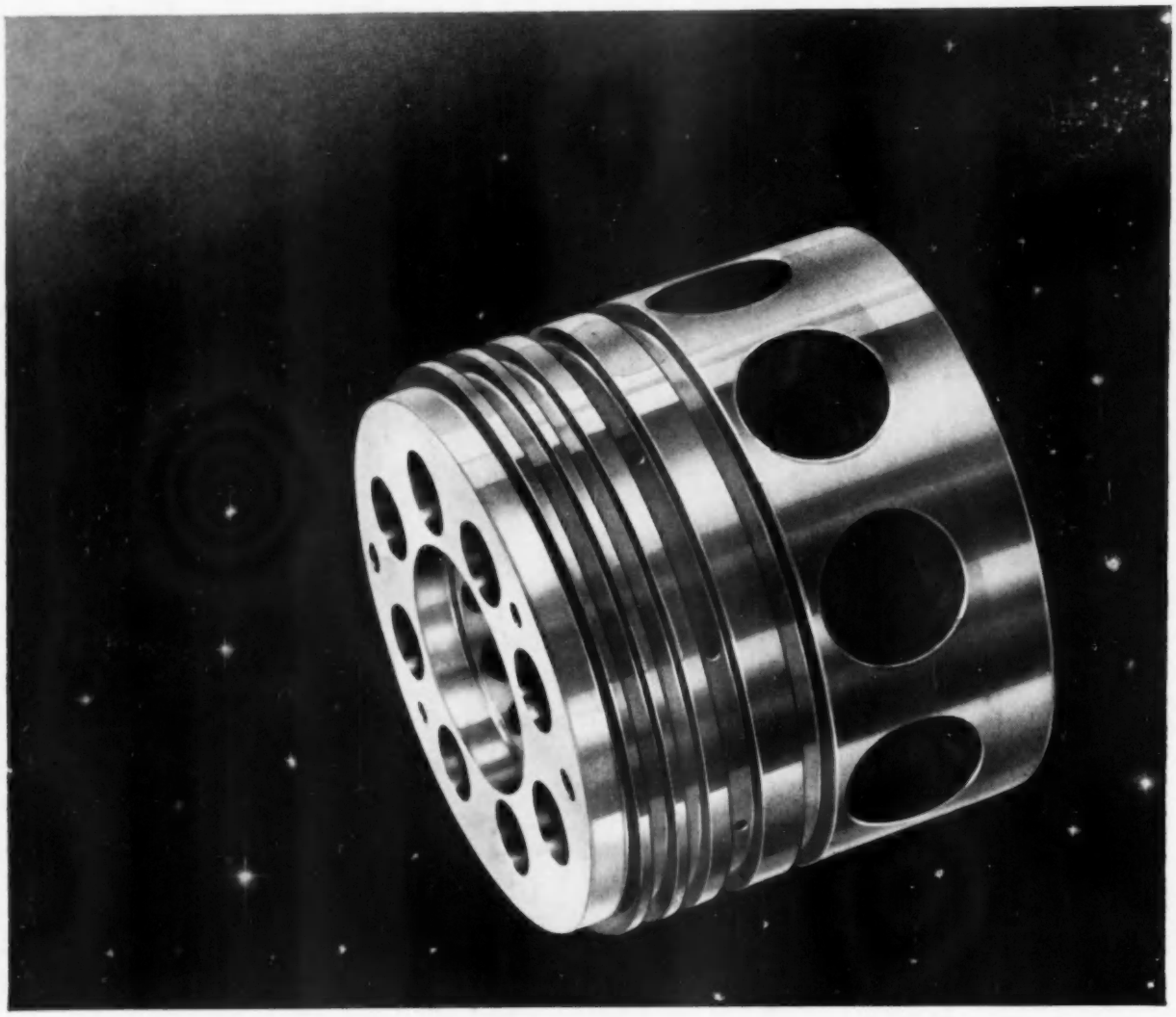

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